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AMERICAN INSTITUTE OF ARCHITECTS

Vol. VI JANUARY, 1918 Number 1

CONTENTS

		Page
The Song of the Pagan Builder		2
Shadows and Straws		3
Wake Up! Architects of America!		8
News Notes		13
What is a House? V	*Richard S. Childs*	14
The New Program for Public Buildings in Washington		19
Ways and Means of Securing Improved Housing	*Edward T. Hartman*	27
Home-Ownership in New York City	*Herbert S. Swan*	28
The New Income Tax		29
Letters from an American Architectural Student in France		30
Institute Business		32
Report of the Special Committee on Emergency Construction for the Navy Department		33
The Architect and the Decorator		35
Book Reviews		35
Obituary		36
Latest Developments in the Housing Situation at Washington		36
Structural Service Department		37
"Signs of Change"		48

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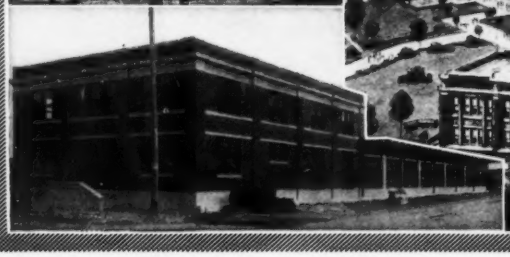
Barrett Specification Roofs



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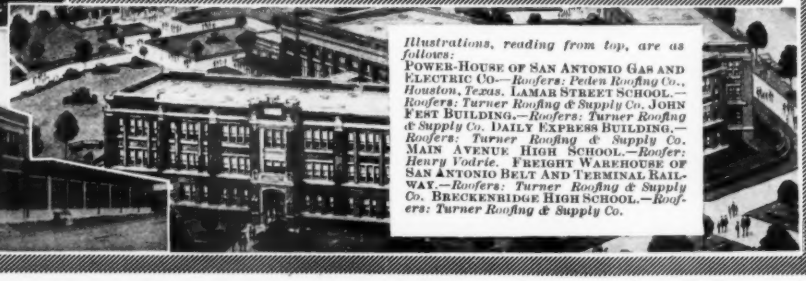

Illustrations, reading from top, are as follows: POWER-HOUSE OF SAN ANTONIO GAS AND ELECTRIC CO.—*Roofers: Peden Roofing Co., Houston, Texas.* LAMAR STREET SCHOOL.—*Roofers: Turner Roofing & Supply Co.* JOHN FEST BUILDING.—*Roofers: Turner Roofing & Supply Co.* DAILY EXPRESS BUILDING.—*Roofers: Turner Roofing & Supply Co.* MAIN AVENUE HIGH SCHOOL.—*Roofer: Henry Vodrie.* FREIGHT WAREHOUSE OF SAN ANTONIO BELT AND TERMINAL RAILWAY.—*Roofers: Turner Roofing & Supply Co.* BRECKENRIDGE HIGH SCHOOL.—*Roofers: Turner Roofing & Supply Co.*

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THE SONG OF THE PAGAN BUILDER

"When the Memnonium was in all its glory"

Oh Work! That gav'st into the hands of man
The power with which to touch the earth
And glorify his spirit's birth!
Make me, thy servant, something worth
To keep alive the flame throughout my span.

Let it burn fierce, th' imperishable fire,
And in the wonder of its flame,
Blot out my transitory name,
And who I was, and whence I came.
Leave only the clean ashes of the pyre.

Let its clear blaze consume me to the end,
And, in the whiteness of its heat,
Temper my soul and teach my feet
All paths to tread, that I may greet
All truth, nor fear to take it for my friend.

And when my work is done—the last night here—
There still shall be one ember bright,
Upon the altar one clear light,
My Self, that struggled in the fight
For work well done, departing without fear.

B.

JOURNAL OF THE
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Vol. VI JANUARY, 1918 No. 1

Shadows and Straws

THE QUESTION OF GOVERNMENTAL AID to the building of homes for workers in war industries as a means of carrying on a successful war has begun to resolve itself into an actuality. The Shipping Board, we are informed, has made funds available for relieving the deplorable conditions in five places and to the extent of providing 7,500 houses. The plan of operations, it is said, is based upon the broadest conception of the problem now possible under existing legislation, and serious study has been given to the question of making the operation of a permanent value and of providing houses which, either for sale or for rental, will be within the means of those for whom they are destined. We understand that elaborate calculations of costs and wages have been made, which seems opposed to the English method of building good houses and leaving the question of prices or rentals to be determined in a future about which facts may be known rather than guessed at. It is also to be inferred that suitable steps will be taken to prevent great profits from being collected by land speculators. The results will be eagerly awaited.

It is also to be hoped that further powers and more money will be given by Congress in order that we may reap the full measure of an experience such as England has had, and such as some of her colonies had already provided against, as in New Zealand and Australia. More than this it is impossible to say at the present moment, although one might well pause for an instant at the thought of the bunk-houses which have been built by one ship building plant, at least, of which more are contemplated, and the occupancy of which is avoided by men who prefer to travel from four to six hours a day rather than risk the vermin which infest these structures—but, after all, we cannot hope to achieve a miracle in four months, and the necessities of war do not stimulate commonsense where none exists. Many people have been taking their first lesson in dealing with the house problem at the expense of the nation, which is a painful form of education but may prove salutary, if we can hold out long enough.

AT ITS RECENT MEETING in Washington, the Board of Directors of the American Institute of Architects adopted the following resolutions:

WHEREAS, It is the belief of the Board of Directors of the American Institute of Architects that the question of providing within the shortest possible time a supply of workmen's houses such as will reduce the present waste in labor turnover, relieve the intolerable congestion, and provide good living conditions for workers, has for months been the gravest menace to the safety of the nation and has now become vitally necessary to the victorious conclusion of the war, and

WHEREAS, The manner in which such relief is provided will not only determine the measure of our effort to increase the present volume of industrial production, but will profoundly affect the economic and social life of the nation in the future, be it

Resolved, That the Board of Directors of the American Institute of Architects, at their meeting held in Washington on January 17, 1918, submit to the President of the United States, the Congress, the Labor Council, and the Shipping Board the following recommendations as expressing their belief in those essential features which should govern the whole program of industrial housing:

(*a*) The duly constituted authorities should have the right to take land for this purpose.

(*b*) Powers to survey needs for housing facilities and to determine, in coöperation with a central priority board, the relative importance of industrial operations.

(*c*) Powers to design and construct communities where the needs of such have been made evident by the survey.

(*d*) Powers to operate and manage these communities during the war and for a period of years thereafter.

(*e*) Powers to maintain a high standard of physical well-being in munition plants (adopting the standards set by our most progressive industrial corporations) and to organize community activities within the communities thus created, and be it further

Resolved, That as the ultimate disposition of these communities with the least loss and the greatest good to the nation cannot at this time be determined, there be created a commission to consider and report upon the following within a fixed period after the war:

(*a*) The basis upon which such communities could be transferred to municipalities or local limited dividend corporations.

(*b*) The organization of local limited dividend corporations to manage and develop the communities created during the war.

(*c*) The establishment of that part of the cost which should be written off as belonging to the cost of war.

(*d*) The methods of saving the appreciation of land-values for the benefit of the community as a whole.

COMMENTING ON ONE OF THE PLANS PROPOSED for dealing with the larger phases of the question not touched by the Shipping Board's action, and which calls for an appropriation of $100,000,000 to be lent by the Government at low rates of interest, and to be supplemented by $25,000,000 of local capital, Frederick L. Ackerman, whose report of English methods of dealing with this problem was published in the last number of the Journal, has the following criticism to offer in a letter to the New York *Times* of January 14:

"I charge that this is the unimaginative way, the indirect way, the ineffective way to attack the problem. I say this for the following reasons:

"1. It is precisely the method which failed in Great Britain, where the Government, in addition to the loan, gave outright a substantial subsidy.

"2. It means long delays in the taking of land and in arriving at the terms of agreement between the Government and the corporations. As proof of this, I call to witness the present situation where such loans have been tentatively offered to munitions-making corporations; also the testimony of men in the British Ministry of Munitions.

"3. If the financial responsibility for these investments be placed upon the corporations, they will seek to reduce that responsibility to the limit. The absolute minimum of conveniences and stabilizing elements will be introduced. Why use a boomerang when you can use a gun?

"4. The argument regarding the advantage of the proposed method of stemming 'the avalanche of demands for gifts for housing,' etc., has no value. It is the Government's duty to know where these are imperative needs—there and there only should the Government provide the necessary accommodations. This quoted phrase expresses vividly the idea that the Government looks upon this phase of war from a narrow financial angle. It discloses a policy to bargain, rather than to act, in this great emergency.

"5. Owing to endlessly varying conditions, we will erect temporary, semi-permanent, and permanent structures. Some will appreciate in value. Others will become worthless and should be destroyed. The time to adjust values, negotiate terms of transfer or sale, and establish that loss which belongs to war, is after the war, when all the cards can be placed face up on the table.

"6. In communities such as Bridgeport or Newark, what relation has the house to the factory? A house is something needed equally by the man who makes guns and the man who makes bullets. In these complex communities, why break the problem up in little competing units? Homes are what is needed.

"7. One hundred and twenty-five million dollars, representing the $100,000,000 to be given by the Government and the $25,000,000 of local capital which it is expected to raise, is utterly inadequate to meet the imperative needs now disclosed along the seaboard.

"8. No one knows how long the war will last, nor the demands to be made upon us, nor to what extent these plants will expand, not to what extent women will enter industry. Our policy should be flexible, so that it may be instantly adapted to changing conditions. The policy proposed is not.

"With this bickering, bargaining policy, we have consumed many precious months. Our army is going to France. It must have munitions. Our Allies must be fed."

IN THE "NEW REPUBLIC" of January 12, Robert Anderson Pope unreservedly indorses the program outlined by Mr. Ackerman in the last number of the Journal. He also suggests state or municipal aid, backed by governmental guarantees, and points out that the building of workmen's houses may be considered as an income-producing enterprise. But this again presents delays which would extend over months, and in the meantime the dire necessity is gnawing at our very vitals. Mr. Pope also says:

"The success of our war-housing administration is now being threatened by various professional interests, especially those of the architects and town planners. Many of these gentlemen are convinced of the Government's need of their services, and each believes that the priority of his profession should be recognized. Relief from the evident menace of such a situation can be definitely assured only by choosing an executive who shall be without professional interests or affiliations of any kind whatever, and upon whom shall be placed the entire responsibility for providing all necessary war-housing. He should be possessed of the greatest experience in finance and large enterprise and be at the same time determined to produce the highest possible social welfare. Make him responsible to the Cabinet and the President. Give him authority to assign the various fields to be surveyed to sociologists, town planners, architects, engineers, and financial directors of his choosing. Before long he will be able to choose

the members of his housing cabinet, and upon them he will rely for advice. Meetings of such a housing cabinet would be held frequently to secure the most effective correlation, but the executive should alone make and assume responsibility for all decisions. For such additional powers and such further financial support as he needed to consummate this work he must look to the President and his Cabinet."

THIS IS THE VERY SUBSTANCE of the program presented by the Editor of the Journal to the Government over four months ago, when it was urged that an administrative body be appointed to act in precisely the manner Mr. Pope points out. The failure to arrive at any such point may be traced to the timidity and weakness of those who controlled the destinies of that program, as well as to the suspicion engendered by the self-seeking gentlemen who volunteered their remedies. But in the face of a national crisis such as this, suspicions have no place in the minds of those qualified to deal with these matters. Pointing the finger at selfishness is not winning the war. Running a kindergarten in order to acquaint a number of men with the elements of a question which has been studied by competent men these many years—by men who look at the future through the future's eyes and not through the loopholes which suddenly have been cut through the solid wall of their unsocial mind—is not good war-making.

The creation of the Advisory Council of Labor, under date of January 14, fortunately invests the solution of the house problem with such a hope for its courageous and intelligent treatment as has hitherto been denied to those who have watched the throes of its painful career as a shuttlecock in the hands of amateur battledoresemen. The new Council is composed of John Lind, Waddell Catchings, A. A. Landon, John B. Lemon, John J. Casey, Dr. L. C. Marshall, and Agnes Nestor. Under the order by which it came into being, all matters connected with the housing of labor now appear to be within its jurisdiction, although the precise manner in which readjustments will be effected in order to accomplish this centralization is not yet announced. Grave as are the consequences of slumbrous delay and imperative as the demands for a broad, full-visioned and wholly enlightened treatment of this preëminent problem have now become, the time has at last arrived when the nation may hearten itself with a faith that the building of workmen's houses is to be dealt with in the spirit of the New Future, and not in the terms of that Dead Past, as the President so aptly characterized these periods of world history in his last address to Congress.

THE REPORT OF THE PUBLIC BUILDINGS COMMISSION submitted to Congress in December ranks with the report made by the Park Commission of 1901 as a safe and logical guide to the development of the National Capital. The plan of 1901 was built on the L'Enfant plan of 1792. The Public Buildings Commission report carries on the same tradition and presents for the guidance of Congress a means at once of providing necessary buildings for the conduct of the Government's activities and also of developing the city of Washington harmoniously and adequately. The three plans of 1917, 1901, and 1792, constitute the architectural charter of the District of Columbia. The principles laid down in them are to be studied, mastered, and acted upon. No essential deviations should be permitted. Every building erected according to the plan will result in a saving to the Government.

It is something over eighteen months ago that the Journal published a partial list of the buildings and other structures rented by the Government, but that incomplete statement attracted unusual attention, for it revealed in a very graphic manner the uneconomical manner in which the activities of the Government were being housed. The present report is based upon a study of the immediate needs and upon a computation of the probable needs of the future. The complicated character of the undertaking may be understood when it is stated that the investigation of present conditions necessitated an analysis of some two hundred different items of rentals now paid by the Government and totaling something like $1,400,000. There has naturally been a very considerable increase in rented space during the last six months, and the pre-war waste has been expanded into a sum much larger than the amount expended in rentals, due to the scattered locations and the ill-adapted structures which have been pressed into use.

THE ACT OF CONGRESS creating the Public Buildings Commission provided that the Commission should have the advice of the Com-

mission of Fine Arts. The report of the latter Commission (the major portion of which is printed in this issue) shows entire harmony between the conclusions reached by both bodies. The Public Buildings Commission states general principles and proceeds to the application of those principles in detail. The Commission of Fine Arts presents the argument for the development of the District of Columbia according to the now well-defined lines, going into matters beyond the scope of the other commission. In many ways the contribution of the Commission of Fine Arts is a commentary on, and a plea for, the realization of the Public Buildings Commission report. This unanimity gives weight and authority to the conclusions reached.

THE FUNDAMENTALS OF BOTH REPORTS are, first, the development of a group of executive buildings around the entire square, the south side of which is occupied by the White House, the Treasury, and the State, War and Navy building; second, the completion of the Capitol group by a development on the south analagous to that already begun on the north; third, the redemption of the area between Pennsylvania Avenue and the Mall by the location thereon of public buildings; fourth, the development of the Mall as the intellectual center of Washington. The Commission of Fine Arts also discusses the development of park connections to encircle the entire District; the protection of both parks and public buildings from intrusions by high buildings; and the very essential relocation of the Botanic Gardens.

IN COMPUTING FUTURE NEEDS, increases in space of from 10 to 20 per cent have been allowed for, while the locations chosen, in many cases, are such that additions and enlargements may be made as required. This principle is accepted by the Commission as one that should govern the choice of locations. The report does not confine itself, and very rightly so, to the purely administrative buildings, but deals also with those of a general or semi-public character, such as museums, armories, memorial halls, markets, as well as the needs of the Congressional Library and the Smithsonian Institution. In dealing with the question of locations, the Commission has been guided by the following principles:

1. Public buildings other than those of the Executive Departments, should face the grounds of the Capitol.

2. New Executive Departmental buildings may well be located so as to face Lafayette Square (the square facing the White House) in such a manner as to complete the arrangement already begun, and south of Pennsylvania Avenue along Fifteenth Street to B Street, on the land already purchased and awaiting such occupation.

3. As buildings of a semi-public character have been located south of the Corcoran Art Gallery along Seventeenth Street, structures of like character may well be continued along* B Street from Seventeenth Street to the grounds of the Naval Hospital.

4. Both sides of the Mall, with the exception of the space needed by the Department of Agriculture on its grounds, should be occupied by museums and other buildings containing collections in which the public generally is interested, but not by Department buildings.

5. The †space east of Fourteenth Street, between Pennsylvania Avenue and the Mall, should be occupied by public buildings.

IN ESTIMATING THE COST of the new buildings needed, the Commission based its figures upon the following conclusions:

1. Each building should express ideas of permanency, good taste, and dignity consonant with the dignity of the Government of which it is the outward and visible symbol.

2. Subordinate functions should be so housed as to express subordination. A bureau building should not rival architecturally the administrative building of the Department to which it is attached. Furthermore, as the Capitol and the White House are the chief buildings of the nation no structure should be permitted to seem to outrank these buildings.

3. A structure used primarily for clerical or mechanical purposes should express architecturally the purpose for which it is used—this, from motives of economy as well as good taste.

Based upon these concepts there were adopted, for the purpose of cost calculation, the departmental type, the Mall type, and the office type. As typical examples of the first, there are cited the Treasury, the preliminary designs for the buildings for the Departments of State, Justice, and Commerce and Labor.‡ Types of the so-called Mall buildings are the new National Museum, the Freer Art Gallery (now nearing completion), the design for the George Washington Memorial Hall, and the Depart-

*(NOTE.—The buildings here referred to are those of the Red Cross, Daughters of the Revolution, and the Pan-American Building, which last stands at the corner of Seventeeth and B Streets, the latter leading toward the Potomac River near the location of the Lincoln Memorial.)

†(NOTE.—This refers to the space along Pennsylvania Avenue, from the Capitol west to a point diagonally opposite the New Willard Hotel.)

‡(NOTE.—As this latter has been separated into two distinct departments, there will be a building for each, instead of the one planned for both at the time of the now famous competitions.)

ment of Agriculture building. For the office type, the new building for the Department of the Interior is indicated.

THE NEW BUILDINGS RECOMMENDED by the Commission are as follows:

Department of Agriculture. Three buildings to cost	$4,874,621 00
Archives building	1,300,000 00
Armory	1,945,000 00
Department of Commerce	2,775,000 00
Fisheries	710,000 00
Congressional Library (bookstack)	400,000 00
Court of Customs Appeals and Court of Claims	415,000 00
Interstate Commerce Commission	1,725,000 00
Government Printing Office	3,435,000 00
Government Printing Office storehouse	515,000 00
Department of Justice	2,475,000 00
Department of Labor	1,077,000 00
Navy Department	2,090,000 00
Shipping Board	1,361,688 00
Smithsonian Institution. Three buildings	7,500,000 00
Department of State	2,385,000 00
Treasury Annex	3,845,781 00
Auditors' Building	1,315,000 00
Engraving and Printing Annex	1,550,000 00
Custom House	20,000 00
Public Health Service. Three buildings	207,000 00
War Department	1,225,000 00
Quartermaster Garage	300,000 00
General Garage	218,000 00
Army Medical Museum	2,300,000 00
Public Market	2,000,000 00
Total	$47,965,000 00

Of the above, the Treasury Annex is alone authorized by Congress. The first part of the Annex, for which $1,250,000.00 was appropriated, is now being planned and designed by Cass Gilbert, associated with the Supervising Architect's office in this work. The remainder indicated in the above column is the allowance made for an extension of the Annex as a part of the Lafayette Square development.

THE PROGRAMME LAID DOWN involves what once would have been considered a large amount of money, but in view of the amazing growth of governmental activities, no one thinks it large today. Beside that, two very pertinent considerations present themselves. First, no Department building has been constructed by the Government for thirty-eight years, excepting that for the Department of Agriculture which still lacks the Administration building. Thus, there is more than an entire generation of deferred construction to make up. Second, a new building for the Department of State—a building which will be used during an indefinite period—will cost no more than the temporary building which now cuts across the Mall and which is designed to last but five years. Each year will bring its accrual of dilapidation and consequent unsightliness.

TODAY IS THE TIME TO BEGIN provision against that squalor which is certain to come to Washington with the decay of temporary buildings which otherwise will be used long after they have ceased to be usable.

VOLUME FIVE OF THE JOURNAL was completed with the issue of December, 1917. This marks an important event in the history of the Journal, for we are now at work reprinting the Structural Service Department in the form of the Structural Service Book, a notice of the publication of which has been mailed to all members of the Institute. Month by month the interest in this Department has increased. If any doubt ever existed as to the value of this work, it has now vanished, for the orders for the Structural Book which have been received from the Departments of the Government, from manufacturers, from municipal building departments, architects, engineers, and technical institutions leave no room for further speculation. The Structural Service Department will be continued this year as before, and each year the Structural Service Book will be published as a reference book, the like of which is not to be found elsewhere.

In this month's issue there will be found, in the Structural Service Department, matter of the greatest interest to architects, both as relating to structural and technical phases of architectural practice as well as to questions concerning contractual relationships, the quantity system, and the signs of impending changes in future procedure as concerned with building. The editors take this opportunity to express their gratitude for the generous appreciation and encouragement which have been extended to them during the year, and for the ever-increasing interest which has contributed so largely toward converting an arduously laborious work into one of real pleasure.

Wake Up! Architects of America!

DEMOCRATIZING the Professions! What does it mean? Applying vocationalism to the process of Government! What does that mean? Converting architecture into a service which shall be within the reach of all! What does that mean?

Even the serious student—dismissing the random speculator from our thoughts—who asks himself what is to be the future of architecture cannot approach the problem unless he first finds out what these things mean by trying to understand, in some manner, the new forces which are being liberated by War!

Which is why we are led to reprint Mr. Sidney Webb's address to the Royal Institute of British Architects on the subject of the function of an architectural society. It is not an invitation, nor a suggestion, nor a criticism, nor a piece of pleasant conversation. It is a prophecy and a prediction. It ought to be made the central theme of every Convention of the American Institute of Architects for years to come!

Mr. Webb's address was as follows:

MR. SIDNEY WEBB: May I explain, at the outset, that I make no pretence at knowing anything whatever about architecture, or about the history of architecture? The suggestions I have to make come from another standpoint altogether. I have, as some of you know, written a sketch of your Institute as a professional association;* but I did not write it out of particular interest in your profession, nor from any interest in its subject of architecture. My business is public administration, and I took up your Institute as one of a number of similar bodies to see how the professional associations have developed during the present century; what work they have done, what have been their successes; the points on which they, I will not say have failed, but have laid themselves open to criticism; and to try to discover from the past history of the professional association what is the part it has to play in the world; what it can do, and what it ought not to do. I was interested in that subject because, twenty-five years ago, my wife and I spent six years in studying trade unionism; and in writing our books on this subject we stated, somewhere, that it was just as important that somebody should investigate the brain-workers' associations; and we suggested that they should be investigated.

A year ago we took up the job for another purpose. The reason we took it up was that during the past ten or twenty years there has been a great revival and expansion of what I will call vocationalism in the world, especially in France, in this country, and in America. I mean by vocationalism the feeling that the vocation, the occupation, the trade to which a man belongs, is a much more important thing than is the parish, or the city, or the county, or even the country, to which he belongs; and that, therefore, he ought to associate very much more with people of his own craft, his own vocation, than merely with his geographical neighbours. And, moreover, it is the feeling that the part which he has to play in government, in democracy, ought, to a very large extent, to be played through his vocational organisation. That feeling for vocationalism has been becoming stronger and stronger during the present century; you see it in all sorts of forms, good and bad alike. It would seem to lie at the back of the outbreak of Syndicalism in France; it lies at the bottom of the activities of the Industrial Workers of the World in the United States. You see it cropping up a great deal in French literature with regard to the brain-workers. We call it, for short, the Functional State, the idea being that the organisation of the community ought to be based upon function, not, as it is almost entirely at present, upon geographical constituencies. . . . .

Your professional association began at the same time as some others; and it began, like many others, not as a professional association in the ordinary sense, but as what may be called, technically, a "subject association." The business of the Institute when it started was not to look after architects; it was to promote architecture, and therefore it included not only architects, but other people interested in architecture. And the reason why your Institute was so largely composed of amateurs at the beginning of its work was that it was a subject association, not a professional association. Its interest was in architecture, and amateurs who were interested in it not only had as much right in the association as the professionals, but they contributed quite a special element—an advantageous element, which in becoming a mere professional association you may have lost.

You, like other professions, have devoted a good deal of time to professional education; and you, like other professions, have devoted much thought to the subject of professional registration. It is astonishing how alike all these professional bodies are, just as every trade is like every other trade—if its own people only knew it; they are deluded by differences in names, and each man thinks his own trade is peculiar. Every trade union is like the others, with the same veil over it; and so every brain-working profession has much in common with other brain-workers' associations. It is only a difference in technique and in nomenclature which obscures that likeness. I, standing outside, can see the points of resemblance, perhaps, better than points of difference. And you, like other professional associations, are gradually elaborating your special code of professional ethics. Some have done it to a greater, others to a less extent. There is nothing peculiar in that, and I hope you will not think I am criticising your association when I say there is nothing peculiar in it—

*"The Organization of the Architectural Profession" (*Journal of the American Institute of Architects*, June, July, August, 1917, reproduced in recent issues of *The Architect*, London).—THE EDITOR.

that it is strictly as a type of professional association that I am able to take it.

What is the origin of these professional associations? We distinguish three impulses, as we call them, which have led the brain-working professions, historically, to associate themselves. The first is what we call the creative impulse; it is the desire to promote the art, or the science, to develop, extend and advance it in all directions. That is really akin to the artist's feeling and desire for creation, and the members of a profession come together and unite their efforts deliberately to advance the technique—the science and the art—of their vocation. This creative impulse lay at the root of most of the professional associations.

At the beginning of the nineteenth century professional association was looked very much askance at; it was regarded almost as a conspiracy against the public; and, consequently, this extremely admirable impulse of improving the technique of the profession provided an eligible starting-ground. And along with that was the fellowship impulse, the desire of every man to associate with his kind. As a professional man becomes conscious of himself as such, he tends to come into relationship with other professionals. And out of that has grown not only good fellowship at social meetings, but also benevolent funds and the other things which characterise most professions. The third impulse—not quite so wholly good—is what we call the possessive impulse. It is the desire of each profession to get out of the community as much as it can for the collective service of its members. This is not altogether to be objected to; each profession must stand up for its own, and see to its own defence against the unconscious oppression of the mass of the community—the ignorant oppression. But that impulse does have its invidious side; and, in one profession after another, it has led to various attempts at larger remuneration and easier conditions of service which are only human nature, but are, perhaps, not in the public interest. It is these three impulses which have given rise to your Institute, and to other professional associations.

I come now to the results of the professional association—and I want to put this very briefly. I think that in your Institute, as far as I can see, as in other brain-working professions, the result of the professional association has been a very considerable elevation of the profession. It is interesting to notice, in the history of professional associations, that in the early days of each one you do not find the "swells" of the profession very sympathetic with it; they do not see the need for any professional association. So you do not find the biggest people in the profession taking a very active part in such association. But the rank and file feel the need for raising the profession in the public estimation. And presently they are joined by the leaders of the profession, and the profession stands together in seeking to take a better place in the estimation of the community. I do not want to go into particulars, but I think there can be no doubt that the architectural profession stands very much higher than it did fifty or a hundred years ago in the estimate of the nation. And I think it owes a great deal of that to the long-continued efforts of the Institute.

I do not want to say anything about improvement in architecture—on which I am not qualified to judge, still, one cannot help noticing that the efforts of the Institute over architectural education have, at any rate, left their mark, and that the rank-and-file architect has, I venture to say, so benefited that he is considerably better educated than was the rank-and-file architect of a hundred years ago. But my opinion upon that is worth nothing. I do not want to criticise the bad effects of the possessive impulse in your case—I do not know enough about it. Perhaps you will allow me to say one thing, as it occurs to me. I have never yet seen my way out of the dilemma of the architect in respect of his charge by a percentage on the gross cost of the building. I have no reason in any way to complain of architects, or to criticise architects in that respect; but, logically, it is a very awkward dilemma to be put in. As one architect said to me once, "I have had a very hard day's work. I have been from morning to night up and down a building, and the result is I have knocked at least £20 off my remuneration." You will understand that. I think the profession does stand in a somewhat illogical position, shall we say, in reference to the method of its remuneration. And I have nothing to suggest to you as an alternative.

I would make a criticism not on the architects, but generally on the brain-working professions, to which architects are probably less exposed than others, though about that I do not know. The ordinary type of brain-working professional is a man who works for what we call a fee, for a succession of clients, by himself, for himself. And, therefore, all professionals tend to think that they should be regarded as alike, as it were, and interchangeable. And you know how far the doctors have gone in assuming that all doctors are interchangeable. In modern times there is much to be done by what is called scientific management, what I may call "team work." Let me give you a case in point concerning dentists. We want ten times as many dentists to do the work of dentistry as we have got. But I do not know that we want every one of them to be an M.D. in order to specialise in dentistry. If you are to have enough dentists for the population, you may have to have four or five grades of dentists; one man for extracting, one for conservation work, one as a consultant, and so on. Doctors and dentists would be much opposed to that. I do not know if we shall ever get sufficient of them to serve the whole community, instead of only the richer fraction, if we insist that each professional must be self-contained. If we are to get the work of the community properly done, for the whole of the community, we shall have to have, generally, more team work in the professions. I do not known how to apply that to architecture; I throw it out as a suggestion.

The chief fault of a professional association is its approach to exclusiveness. As soon as it gets into the saddle it wants to make arrangements about entry into the profession, the length of servitude or apprenticeship. You cannot help detecting a trail of a tendency to exclusiveness in nearly all professions: I will not say anything about architects at all. That exclusiveness takes certain forms. One profession says it will not allow anybody in who has not been apprenticed at a high fee to one of its own members, and the result is it makes its membership extremely profitable because people are willing to pay the high fee to get into the profession. I think that is invidious.

Architects are not guilty of that, but I draw your attention to one particular form of exclusiveness from which it is difficult to get away, and it is one which is injurious. Has it ever occurred to you that we have been, and are, drawing practically all our statesmen, our lawyers, our doctors, our ministers of religion, for that matter, our authors, our editors, our architects, from about ten per cent of the population—namely, the ten per cent whose parents are able to give them some sort of secondary education in adolescence.

Only ten per cent of the community can give their sons secondary education at present, and therefore all the professions which make a secondary education a condition of entry—and it seems obvious they must exact some amount of education for entry—are necessarily excluding from their profession potential geniuses who are born in the general population. That is a dilemma which I do not think, in any one profession, can be got over; it can be got over only by such an extension of the means of secondary education that the whole poulation can have it, so that you will be able to draw your potential architects and doctors from the hundred per cent of the population, instead of from only ten per cent. And, it seems to me, we have allowed a very large amount of potential professional skill, if not genius, to go to waste because we have shut the door in the face of ninety per cent of the population by this requirement of secondary education.

This inevitable exclusiveness is rather serious, and it behooves every profession not to make it worse. You must insist on a certain amount of education, on a certain amount of apprenticeship training; but it is to be detected in professions that they rather want to make that training long, and they insist on keeping up the length of the servitude, irrespective of whether it is necessary or not. For instance, you cannot become a doctor in this country under five full years of academic professional training. Even though you may be a genius and can scamper through the instruction in three years and pass the examination with flying colours, you are kept down to the pace of the average man. You notice how, necessarily, that increases the expenses of the young man who wants to be a doctor, and so it has an invidious exclusiveness. Therefore, in arranging a curriculum and arranging the length of training—to say nothing of the fees—the tendency to exclusiveness has to be watched. The natural tendency is to keep it all up; and it is a very reasonable thing to want to advance the profession and maintain the standard of qualification, and all the rest of it, but it has the adverse effect of producing exclusiveness.

A much more serious exclusiveness, really, is this. You know, every profession tends to be governed by the people aged fifty-eight—I am fifty-eight—by the elders in the profession; it is inevitable. I used to think it was a bad arrangement; but being fifty-eight myself now, I perhaps take a different view. But the result is that it is governed by men who were brought up thirty years ago, whose technique is the technique of thirty years ago, whose knowledge of education relates to the education of thirty years ago. I suggest that there is a tendency in professional associations to ignore, honestly to ignore, the new technique, new methods, which the average elderly member is not personally acquainted with. I do not want to talk about architecture, but I can see it in other professions very obviously; that the elderly man in the profession cannot believe in the necessity or the excellence of what is new, of what was unknown when he walked the hospitals or when he was apprenticed or served his articles. That tendency to be bounded by the current technique, which is generally the technique of the old generation, is apt, in an advancing avocation, to produce more resistance to the incoming of the new technique. I do not know what the buildings will be made of in the next generation of the new England after the war; it may be that they will be built of aluminum or of basic slag. But I very much suspect that the new material, whether it be basic slag or aluminum, will have to overcome a certain amount of prejudice before it is cordially accepted by the rank and file of the profession. This tendency towards conservatism needs to be watched and overcome.

To come now to the point which I ought to have begun with: What is the proper sphere of an architectural society? You will have gathered from what I have said that it is founded on the creative impulse. It ought to aim at promoting its vocation. It is strengthened by the fellowship impulse in the way of social intercourse and benevolence. It is, I fear, always subject to the possessive impulse: its members will endeavour to get as much, collectively, for the vocation from the community as they can. All that they are entitled to from the community is enough to maintain their services at the highest point of efficiency. But in the estimate of what that is, their bias will be to get as much as they can. That fellowship and creative impulse I need not say much more about; fellowship I need say no more about. The creative impulse must be the fundamental purpose of the professional association, to promote its art, its vocation, in all sorts of ways. A legitimate part of the possessive impulse is its defence, defence both of individual practitioners against the lay community, and of the profession as a whole against that lay community; it must stand up for the profession. It must insist on the profession having its proper place in the world; otherwise it will be steam-rollered by other interests.

Now I come to my three things which may be more new to you. The association is entitled to claim participation in the government of the profession. Every profession needs to be regulated in all sorts of ways—conditions of entry, conditions of training, ethical code; it may be registration or what not. And the professional association is undoubtedly entitled—it does not do its duty unless it claims to be entitled—to participate largely in the government of the profession. But I do not think that, from the standpoint of political science, the profession can be allowed to govern itself. There I differ from the vague functionalism or vocationalism which I said was prevalent. I do not think any profession can be allowed to govern itself. It cannot be allowed to determine the conditions of entry; otherwise it makes the profession a monopoly. We want it to help in deciding what ought to be the conditions of entry, but the State could not allow any profession to exclude any people it chose to exclude, under any conditions it chose. It must help the State to fix the conditions of entry, but the State cannot allow it to fix the conditions itself. Otherwise the teachers might say,

"No one shall come into the teaching profession except the sons of teachers," or it could be made very much more onerous to enter the profession. That has been done in other occupations in the past.

Similarly about the training. A professional association ought to take a large part in prescribing the conditions of training, but you cannot give it complete power. And that for several reasons. First of all, because the governing body is apt, as I have said, to consist of people of fifty-eight, and you cannot allow older people to settle the conditions of entry, because they are not up to date; nor can you give it to the young, because you cannot trust them. They might prescribe a training which they thought was in their interests, but which ran counter to some other profession, or was against the interests of the community at large. Supposing doctors were to say that the art of doctoring was so wonderful and great that no one should be allowed to practise until he had been under education for ten years; the result would be to limit the number of doctors and send up the price of doctoring. Therefore we could not allow doctors to make a ten-years' limit, nor could we allow architects to put a similar limit upon the period of preparation. And likewise about professional ethics. An ethical code is all very well, but it might take on a form which is inimical to the common weal. Some professions have established codes which are in some respects inimical to the public interest. But the society ought to participate in the government of the profession.

And now I want to mention two other functions which are not generally thought of, and this is serious. I came here, if I may say so, to put this idea to you. First of all, a very large part of the public function of a professional association seems to me to be one which it has not, to any great extent, yet exercised; and that is it ought to claim the right and the duty of criticism of everything that is done by the Government, or, for that matter, by any public authority, in the lines of its own profession. It ought not merely to make that criticism in an irresponsible way, but it ought to regard it as its duty to inform the Government of the day of the professional opinion upon every kind of act which is done by the Government, or left undone, on which the profession has a distinct opinion.

One of the very worst elements of our present Government, of what we call bureaucracy, is the secretiveness of official administration, and the suppression by that official bureaucracy, as far as possible, of any professional criticism of its work. Any architects who are in the Government service are not allowed to criticise the decisions or acts of their Government Departments from the point of view of architecture. There is a curious difference in this respect between the municipal and the Central Government services. The local government service does have a lot of professional criticism. The Institute of County and Municipal Engineers, for instance, is always full of criticism in its *Proceedings*, its publications; and at its meetings it has papers criticising this or that drainage scheme, or electric light works, from a professional point of view. It does not hesitate to say that a plan has such and such faults. But you find nothing of that kind from the professionals in the Central Government; they are not allowed to give that sort of criticism of the work of the Central Government Departments.

Perhaps that regulation is necessary; I do not know. But if it is, it makes it all the more necessary that some professional criticism of the Government service should be supplied by the professional association. And I would like to see it the duty of a professional association to keep constant supervision, and a very critical supervision, over all the acts of the Government, or any Government Department, or any public authority, falling within the realm of its profession; and to put that criticism publicly on record, and bring it definitely to the notice of all the Government authorities with the view to supplementing the, perhaps necessary, secretiveness of the bureaucracy, and at any rate supplying that criticism without which a bureaucracy can never really be healthy.

I would go further, and say that I think the Government, either particular departments or the Government as a whole, ought to have professional advice and counsel in each vocation. And I would have each Department arrange to have a standing body of professional advisers to whom I would give no power whatsoever. Let it express its views freely and publicly on all the projects and doings of the Government, in a report which should be laid before Parliament and definitely published, and, of course, in an uncensored form. I think every Ministry ought to have an advisory professional council of the profession with which its work is concerned. And whilst that advisory council should have no power whatsoever, it should have a free initiative to say what it liked, the power of publishing its reports, when it thought fit to do so, in an uncensored form.

My third point is this. It seems to me that it is the duty of a professional association—and this is a duty which I think, no professional association, except one, has yet seriously undertaken at all—to bring to the public notice, and to agitate for, the supply of a sufficiency of its service to the community as a whole. Let us begin with the doctors. The professional associations of the doctors have looked after the interests, as they thought, of individual doctors, and they have done their best to get individual doctors properly treated, and the profession as a whole properly treated. But the medical profession has not made its voice heard with regard to the service which it has to render to the community as a whole; it has not clamoured for seeing that there was a proper professional medical attendance and treatment supplied to the whole community. I hope I am not saying anything too hard, but practically the brain-working professions began as the body servants of the rich, and they have not yet sufficiently realised that it is their duty to have developed out of that to become the servants of the community; they have not yet managed to make their service available for the whole of the community which needs their service. They still serve, on the whole, Mammon, and Mammon alone. And, unfortunately, the great mass of the community still has to go without the services which the professions do render to the rich and ought more and more to render to the community in its collective capacity.

If you ask me to apply that to architecture, I am in a difficulty. I cannot help noticing that in the early days of your association—to go back to the early Victorian times—architecture was thought of only as a luxury for the rich, and, even to the end of the nineteenth century, that it

could be said that ninety per cent of buildings did not require an architect; only those buildings which it was expected or desired should be beautiful required an architect. And that seems to be a totally unworthy view of architecture. It is the duty of architects to claim that they shall be responsible for all buildings, including town-planning. And when you consider the awful buildings and the awful town-planning to which the great mass of England is still subject, the need for more architecture and better is surely very obvious. It should be the aim of the architectural profession to claim that the service which it can render, the service of architects, should be supplied in sufficient quantity to be available for all the buildings and all the town-planning of England. It is a reproach to the profession that any town should be badly laid out. I do not say it is the fault of the profession, but I hold it up, as an ideal, that its business, as an association, is to demand that such arrangements shall be made as may be possible so that the service which the profession can render to the community should be available in sufficient quantity, and of sufficient quality, for the benefit of every person in the community, and not merely as a luxury for a rich class. That is a very big claim to make for a professional association. I am asking that the professional association should not only have this work of elevating the profession, looking after the profession, regulating the profession, as much as it is allowed to do, but I have said it should claim a large participation in the government of the profession, but not the sole government of the profession; that it ought to make it its business to conduct a regular, authoritative, public, responsible criticism of everything that the Government does, that any public authority does, in the sphere of its profession. And, above all and supremely, it ought to regard it as its duty to claim, in season and out of season, that the services which the profession can render to the community should be available in quantity sufficient to enable every person in the community to get the benefit of the service.

The reason why architecture was a luxury of the rich in the past, and still is, to a large extent, a luxury of the rich and of the public departments, is because it is expensive. There is no magic way by means of which you can bring a service which is necessarily expensive within the means of the poor. There are two ways. One is, you might make the poor cease to be poor. But that would take me too far afield to-day. The other way is, that you might take care that that which the poor cannot pay for individually, the community, if it thinks it necessary in the public interest, should pay for. It is what we are doing about teaching and about doctoring, about one profession after another. We are supplying the service of the profession to everybody who needs it, at the common expense. This is how, I think, architecture can be supplied for the needs of everybody who needs it, and not merely to the rich.

With regard to the question as between the salaried architect and the architect on the panel, the analogies of another profession are not very promising about that panel. I am not sure that the buildings, on the whole, which have been put up by the London County Council architectural staff do not compare favourably with the buildings put up by the London millionaires. I think they do. But it is perfectly true that what you call the genius of architecture may not flourish in that process. I face it: it may be that the way to get the finest flower of architecture may be to leave it as a plaything for the rich patron. That may be the best way. We have had some great art in that way, though the rich patron in past times was very often the communal patron, and the best things have perhaps been done by communal patronage. I would remind you of the cathedral at Florence, and much of the work of Greece, produced by municipal effort, though they did not always call it municipal. It is necessary to remember it was the municipalities and the public authorities of the cities in those times which produced architecture. I am not looking on architecture for the moment as an art, but as a service. If the community gets it as a service, perhaps Art will look after itself: I do not know. . . . . .

The most important thing I say to you is this: it would do an immense amount of good to the position of the professions in this great democracy if the professional associations would make it their primary and permanent duty to be always considering and insisting how the service which their profession exists to render to the community can be made available in sufficient quantity to be enjoyed by the whole of the forty-seven millions of this country, instead of only five or ten per cent of them, which is what the brain-working professions have hitherto mainly served. And I suggest that the democratising of the service of a profession may be the basis of its new development in the twentieth century not less glorious than anything that it has achieved in the past.*

MR. W. E. VERNON CROMPTON [*F.*]: I rise to propose an enthusiastic vote of thanks to Mr. Sidney Webb for the speech which he has given us this afternoon. I did not know until a moment ago that I was going to be asked to propose this, but I feel so heartily on the subject myself, and I am sure that the various points which he has given us this afternoon are so vital to us as an Institute, as well as to us as individual members, that I do not think I am going too far in saying I almost consider this meeting may be a starting point for a new policy for this Institute of a very much more drastic type, of very much better national service than we have hitherto thought it our duty to take up. . . . .

Mr. Webb was, I thought, somewhat apologetic to commence with, and led us to think that he did not know very much about architecture and architectural relations and functions; but to any of us who have read—and I hope most of us have read—that most remarkable article published by *The New Statesman* on "Vocational Organisations," by Mrs. Sidney Webb, it will be evident that both Mr. and Mrs. Webb have gone to the bottom of the whole of this question of professional organisations, and this vocationalism which is going on before our eyes.

MR. H. V. LANCHESTER [*F.*]: I should like to say a few words on the three claims which Mr. Webb suggested we should make. It is encouraging that he should have put before us these three definite claims, because we have begun to nibble at them already. I need not expatiate on

*Mr. Sidney Webb at an earlier stage of the proceedings mentioned that owing to another engagement he would have to leave early, and at the conclusion of his remarks he left the meeting.

the subject of our own government, and on our methods with regard to training and ethics. It is obvious that whatever we recommend ought to be approved by the State, or criticised by the State. In regard to our now criticism of public projects, we have now and then made good our point. In the recent case of the Charing Cross Bridge Bill, for instance, certain provisions were introduced into the measure owing to the initiative of the Institute, and there is every hope, I believe, that in the future that will not be overlooked by the Government. But on the third point, the methods by which the services of our profession should be secured wherever they will be of value, I would put a proposition, and ask Mr. Webb what his views are. We are quite willing, and I believe we have the strength in our professional societies, to offer the services and to do practically the bulk of the work where architects' services are needed. But there is a very great difficulty owing to the Government Departments having always been obsessed with the notion that they must work by means of a departmental staff. The same applies to local authorities. If there might be some method by which those departments could have what is termed a panel in another profession from which they could draw competent men for special services, would it not enable the profession to be enlisted wherever their services are desirable, and get through the immense amount of work that is waiting for them, and extend their services to the whole community, instead of limiting them to the few, as has been done in the past? I want to suggest the principle of a panel because many of us are convinced that the system of departmental offices is, however good the men filling the posts, inconsistent with the genius of architecture. The departmental responsibilities and details, and the way the architect there has to do his work, are such that the architect is dragged away from that freedom of outlook, that possibility of keeping his mind fresh and open to new methods—keeping young, in fact. Mr. Webb talks about the age of 58, but the exercise of a profession such as ours keeps men of 58 at 38—so if there is a possibility of reorganising what we may call the official work in such a way as to draw on the profession at large, it would be a great gain to the community.

Professor W. R. Lethaby [*F.*]: I an entirely in accord with Mr. Sidney Webb, and it is a pleasure to hear him speak again. I have heard him speak at Technical Education Boards, and he still retains his delightfully conciliatory way. There is no need for him to apologize, because he has said nothing harsh, and his address was most delightful. The only little point I would put to him is this. He spoke to us of our duties—I think properly and rightly—and I suggest to him the reciprocal view, that the community should be a little more willing to accept the public recommendations of architects. They do not do that; they have their own ways of appointing people to public offices, people who are doubtless very valuable, from many points of view, but are not people who represent their calling. They are not the best people of their time, but boards are very jealous of any outside advice on these things. The part of Mr. Webb's address which specially interested me was that toward the end, where he spoke of the possibility of sorts of councils of wise men. We do need that in England, to get outside the dreary, and quickly becoming vicious, circle of politics: we do require some possibility of drawing on the experience and wisdom of the community.

News Notes

Harvard School of Architecture

Arthur Brown, Jr., has recently been appointed lecturer on design at the Harvard School of Architecture. He was born in Oakland, California, May 21, 1874. He graduated from the University of California in 1896, with the degree of Civil Engineer. He was admitted to the Ecole des Beaux Arts in Paris in 1898, where he studied under M. Laloux, the eminent French architect. While a student in that school Mr. Brown won many honors. He took nine first medals in the course of his regular school work, and won also first prize in the Godeboeuf prize competition in 1900, and second prize in the Rougevin Competition in 1903. He received his diploma from the French Government in 1901, and the Grande Medaille de La Société des Diplomés was awarded to him in 1901 and 1902.

Mr. Brown began the practice of his profession in Washington, D. C., in 1904. He moved to San Francisco in the same year, and became a member of the firm of Bakewell & Brown, which firm has designed and executed many important public and private buildings on the Pacific Coast since that date; among the better known are the City Hall in San Francisco and the City Hall in Berkeley, both won in competition, the Sante Fé Railroad Station at Redlands, the Country Club at Burlingame, the City of Paris Department Store in San Francisco, and the Horticultural Building at the Panama-Pacific Exposition.

Mr. Brown has also had experience in teaching architectural design, as he was on the staff of the University of California, and conducted a successful atelier for the Beaux Arts Society. He is a member of the American Institute of Architects, the Beaux Arts Institute, and the Société des Architectes Diplomés par le Gouvernement Français.—Fromthe Harvard Alumni Bulletin.

The Index to Volume V

An Index to Volume V has been printed and will be mailed to all subscribers upon request.

Bound Volumes

Due to the congestion of the postal and express services, the Journal announces that it will not bind volumes for subscribers this year, but asks that the numbers of Volume V be laid aside until the end of the present year, when, if war conditions permit, arrangements will be made for binding Volumes V and VI at the same time.

What Is a House? V*

By RICHARD S. CHILDS

The House Problem Is a Land Problem

IN ESSENCE, the reason why our workmen and their families do not live in attractive surroundings is because attractive surroundings would raise the rent which in turn would raise the land values. And a raise in rent would chase away the workmen and their families.

When New York opens a new subway and offers to a district where the working people live, a quick, convenient ride down town, the operation of this law promptly chases the aforesaid working people fifty blocks further away. I know a church at 76th Street whose whole congregation moved to the 120th Street region when the subway opened, to avoid the rising rents.

If New York should solve its market and food-supply problem, the landlord, showing a prospective tenant through an apartment would say, "We are only three blocks from the municipal market here; you can save $10 a month on food. So this apartment at $70 a month is really just as cheap as it used to be at $60." Or the vacant-lot owner would say, "Yes, but all the land in this section has gone up because of the advantages of that new municipal market over there."

In a factory town, if the factory encounters adverse fortune and employs its operatives only intermittently, rents and land values are depressed. But if the factory is full of orders and offers overtime work at time-and-a-half, the real estate men brighten up and get their asking prices.

Increase the workers' pay, with the idea that they can have pretty and spacious houses instead of dismal and narrow ones, and you have increased their buying power—a fact of which the land-owners take note. "They're putting in a lot of machine processes over at the plant," says Mr. Landowner as he dickers over a sale, "and several hundred high-paid mechanics will be brought here to live. They'll be wanting homes." And he stiffens his price appropriately. If a group of millionaires had sudden reason to colonize there, his prices would grow vastly more. When Henry Ford jumped the wages in his vast plants, Detroit real estate jumped too, to match the new buying power.

*Introducing still another author, with several new ones to follow. —THE EDITOR.

The Fable of the Bungalow

There is a fable told of a man who, choosing between two rural bungalow plots at $500 each, decided to take both and tendered the owner $1,000. But the price of the two, he was informed, was $1,100. For the bungalow he was to erect on one lot would enhance the value of the other lot to $600. If there had been a thousand such lots on sale at $500 each, the price of them all (with a certainty that a thousand bungalows were to be erected) would not be $500,000 but something nearer to $1,000,000. The early comers would pay $500. The late comers, entering a neighborhood whose development had become assured, would pay $600, $800, $1,000, and more for lots that were not a whit different or better. And the tax assessor would value them all, quite properly, at the standard set by the latest sales. So, little by little, the people who could pay $500 a lot, but no more, would find themselves unable to enter the colony.

So we see the real-estate developer buying the big old suburban farm, cutting it into lots, laying sewers, roads, sidewalks and wires, and offering frantic inducements to the first comers, for the sake of profits on later sales after his forlorn, bare tract becomes a nice neighborhood. He wins or loses, as his fate may be, but his bitterest burden is the flimsy parasite development that presently rises just beyond his boundary line and undercuts those later prices by which he hoped to recoup those earlier sacrifices whereby he got the people coming. This unearned increment which he earns for his idle neighbor is perhaps the straw that breaks his back.

Imagine, if you can, an enthusiastic city planner building a model suburb piecemeal! He would buy a few lots, erect a group of pretty houses, sell them and buy land again just beyond, build there, sell, and buy more land beyond that! Would he? Not if the land-owners saw him coming! They would build up a dam

of inflated prices on their lots against his approach, as if he were a leper. His pretty houses, so far from encouraging the erection of more model houses in the neighborhood, would actually tend to make them impossible by compelling other builders to spend for unearned increments of land value more and more of the money they intended to put into plumbing and verandas.

Assessable and Non-Assessable Benefits

When the city builds a sewer, it can assess the cost against the property benefited; the City Club of New York demonstrated, a few years ago, that even so large an enterprise as the subways could have been easily financed in that way by the lands whose value they enhanced; but a good and wholesome housing development that benefits a neighborhood is not assessable, even in part, upon the neighboring land. If it could be, what a fine stimulus we would have for the kind of housing that improves a neighborhood by its very presence! How it would alter the financing of the enterprise if the landowner across the street or around the corner could be charged with a fair share of the cost of thus bringing new people to that section, in due proportion to the resultant enhancement of his land values.

Concede, then, that no real solution of the problem of getting the vast majority of our population into attractive homes is possible unless we first solve the problem of the unearned increment which now banks up in front of economic progress, including housing progress, like snow before a snow-plow!

Wages and Land Values

Of course, there is a wage-problem, too. Numerous workers are paid so little that they cannot possibly meet the rent that should fairly be charged for a barely decent home, even on low-priced land, and employers sometimes go in for philanthropic housing at charity rates to compensate for their own niggardliness. But that is a separate problem—not strictly a housing problem at all.

Wages should be sufficient to obtain for the workers at least enough of the products of other labor to feed, clothe, and house their families in decency and health. In the workers' budget the variable element which has no relation to a definite cost of production is the tribute he must pay to land.

When the Lackawanna Steel Co. put its big plant on a stretch of vacant land near Buffalo and offered work there for several thousand men, the town land was worth $1,279,000. The city of Lackawanna, 14,000 population, grew up there, and the land values skyrocketed from $91 per person to $644 (the plant land being eliminated in each case). That inflated value for standing-room was, in fact, enough to keep about half the Lackawanna Steel Company employees from making their homes there at all, while many of those who do live there, huddle in dingy saloon lodgings and leave large areas idle in the hands of the land speculators. The annual value of a man's full share of Lackawanna land for himself and family of five at 6 per cent is, at the original value, $5 \times \$91 \times .06$, or $27.30; at the enhanced value, $193. Money spent on land rent cannot be spent on house rent. The annual cost of a wholesome house is, let us say, $125 a year. If his modest lot cost only an additional $10 or $20 annually, the worker could more nearly afford those superior accommodations which the housing and city-planning experts yearn to give him.

The net unearned increment which Lackawanna has given as a princely gift to miscellaneous lucky private land-owners and speculators is $6,788,000, a figure large enough in itself to explain why Lackawanna is mostly ragged and squalid instead of dainty and wholesome.*

The Lackawanna Steel Co., after creating the increment, finally bought additional land at the enhanced values and erected a group of good houses for some of its employees, but was unable to charge to its low-paid workers rents high enough to make the operation anything but a philanthropic proposition.

The U. S. Steel Corporation has taken the logical next step by purchasing town land in various places at the same time as the land for the new plants, thus in some degree anticipating and capturing the increment for the benefit of its workers. In some degree, I say, for the coming of a mysterious purchaser who buys land by the square mile cannot be altogether concealed, and the Corporation which, of course, has no power of condemnation, gets mercilessly

*These figures are taken from an elaborate unpublished report by H. S. Swan, of New York, prepared for the Committee on New Industrial Towns, of which the writer is Secretary.

mulcted by the land-owners who get wind of the operation in time to raise their prices.

Having thus acquired the town-site, the Steel Corporation plans the streets and sells off the lots without attempting to reap a profit. But as population arrives, the unearned increment arrives too and confers profits promiscuously upon the successive land-owners. In Gary, Indiana, which this Corporation created, in 1906, on vacant sand-dunes, this generous policy resulted in distributing $22,358,900 net to various private owners and speculators during the next ten years, a heavy burden upon the steel-workers in their efforts to buy housing accommodations or anything else.*

Philanthropy and Paternalism

At other places, under similar circumstances, many companies have bought and kept the town-sites, erected good cottages, and rented them to the workers. Sometimes this has been largely and beautifully done; sometimes cheaply and shabbily. The old New England factory villages, the mining towns and modern creations like Morgan Park, Minnesota (U. S. Steel Corporation), are types. Sometimes the manufacturer collects a profit on his housing operation. More often he runs it at cost, and sometimes frankly and purposely at a deficit, considering it in effect a supplement to his wage-scale. This latter system thwarts the unearned increment nicely. The increment exists, but the owner forbears to take advantage of the power to charge more rent than his actual costs dictate. But the system is paternal and often suggestive of feudalism or of "Lady Bountiful," which irritates self-respecting labor. The corporations' policies and practices as a landlord become entangled with its policies as an employer. In case of a strike, shall it insist on dispossessing strikers who are unable to pay the rent and give the newspapers an opportunity to publish pictures of Mr. Striker and his wife and seven children with their pitiful pile of chairs and bedding on the sidewalk? Or shall it help finance the strike by generously remitting its claims for rent in the cases of those who assert themselves unable to pay? Wise employers dislike to be the landlords of their workers.

*From a report to the Committee on New Industrial Towns, by Dr. R. M. Haig, of Columbia University, republished in part in the *Political Science Quarterly*, March, 1917. Reprints obtainable from the Committee.

The Workman as Home-Owner

The attempt of manufacturers to sell houses and lots to employees on easy terms or otherwise is, from labor's standpoint, not generous but positively sinister. Except in towns where there is great diversity of employment, the effect is to tie the worker to the mill-owner like a feudal peasant to his lord. It interferes with the mobility of labor. As the Welfare Director of a large company enthusiastically explained to me, "Get them to invest their savings in their homes and own them. Then they won't leave and they won't strike. It ties them down so that they have a stake in our prosperity."

Another informant commented on the labor troubles that brought about the permanent dismantling of a certain old plant in a New England village. "Those fool workers!" he said. "There a lot of them had invested the savings of years in their homes and then had to sell out for a song and move elsewhere. That's what they got for quarreling with their bread and butter!"

Community Land Ownership

Are we agreed, then, that the housing question is partly a land question? That an influx of population to a new area enhances land values and thereby burdens the incomers to the full extent of their paying power? That an improvement in housing likewise enhances land-values and promptly balks the progress of better housing by a swelling barrier of unearned increments? That increments must be anticipated and in some way eliminated as a barrier before we can hope to see our army of workers happily housed on any extended scale? That effective housing operations must be on a large enough scale to reserve to the enterprise the bulk of the increments they create instead of handing easy money to the neighbors? That this requires a single ownership and control of the whole tract, rather than diversified ownership with each owner trying to capitalize the benefits of his neighbor's progressiveness? That such single ownership may not wisely be in the hands of a manufacturer who employs the tenants?

In whose hands, then?

In the hands of the future community, as a whole!

The medium may be a non-profit land com-

pany, the conduct of which the future tenants may control—a private government, so to speak; or the government. Either might earn a surplus but would have nothing to do with it save to distribute it in some kind of services among the tenants.

Letchworth and Land Values

In England it is this principle that underlies the garden city. The story of Letchworth has been told already, but let us have it again in these particular terms as a problem in land. The First Garden City Ltd., seeking no profits beyond a cumulative 5 per cent on actual investment, but intent simply upon an interesting public service, bought some 7 square miles of vacant land at agricultural prices, planned a beautiful city for 30,000 people in the center of it, with a belt of farms around it, and put in the necessary paving and utilities to make it habitable. The belt of farm land was a valuable feature; it prevented neighboring land-owners from reaping fruits of the Company's sowing. Any purveyor who wanted the trade of Letchworth must set up his shop and home in Letchworth and not just over the border, for the border was far away. Anyone who obtained a job in Letchworth must live and trade there, too. So when the Company induced manufacturers to come to Letchworth with their operatives, Letchworth property got all the benefit. The lots were not sold but leased for 99 or 999 years on terms governed by a foreknowledge of just how populous Letchworth was to be allowed to be and just what it was destined to be like in each street and square. Some of the unearned increment did escape, due to the length of the leases. The early lease-holds doubtless have some salable value today, and later leases, made after part of the population had arrived, were on an ascending scale of rentals. But the bulk of the increment has been so successfully reserved to the Company, and thus to the community, that at the first general appraisal of the Company's value in 1907, four years after the founding of the town, there was already a net increment of £169,058 above the total cost to that date of £247,806. Since then, of course, the increments have been vast, and Letchworth shows annual profits. For the present, the Company, with its self-imposed limit of 5 per cent annual return on its investments, is itself directing the expenditure of the revenues and performs the functions of practically a municipal government. The property will some day be turned over to the people of Letchworth, and Letchworth will be owner of all its underlying land and of miles of adjacent farms, with revenues beyond the dreams of ordinary governmental avarice.

Between a typical group of private owners and the First Garden City Ltd. there is a gulf. For the annual value of the lands at Letchworth is not expended upon the private comforts and necessities of a certain few land-owners, but upon the property for the benefit of the rent-payers. The landlords of Letchworth were eager to attract population, but they wanted it to come and build, not congested new slums, but attractive homes that would enhance neighboring values. And terms were accordingly offered that left a margin in the worker's budget sufficient to pay for a decent house.

So it came about that the people who left city slums to come to the green charms and sunshine of Letchworth, found that their wages would secure for them attractive cottages on land that was still reasonable despite its desirability. The miracle had been achieved of establishing a spot where good money could be earned and city conveniences obtained without encountering a land-cost so inflated as to exclude the possibility of spending money enough on housing to secure wholesome accommodations.

In the case of those new and charming towns which the English Government has built to house munition workers, the unearned increment has been likewise carefully squelched. The land is taken at pre-war valuation, and the right is reserved of taking more land adjacent thereto, if needed, at the same speculator-defying terms. The Government, of course, disdains to grasp any of the increment and has fixed its rentals at figures dictated by actual costs of land and buildings rather than by the necessities and paying power of the well-paid munition workers. So the munition workers are left able to pay for adequate housing.

From time to time, in America, some great corporation goes forth and establishes a big new plant on vacant land and creates a new town. Thus, the U. S. Steel Corporation created Gary, with 40,000 population, Morgan Park, Minn., Fairfield, Ala., and various ore towns, while a square mile of land at Ojibway, opposite Detroit,

has been expertly planned for 22,000 people and waits its time. So did the Corn Products Refining Co. create Argo, Ill., the Lackawanna Steel Co., Lackwanna, N. Y. and there are numerous other cases. Graham R. Taylor has told about them in his "Satellite Cities."

The next time that is done, the company should buy land enough for the plant and the town, too, create a non-profit land company, sell it the town-site, and accept in return its first-mortgage bonds. The land company should plan the city, pave it, provide water and other utilities, stake out the building-lots, determine which shall be business streets and residential streets, and establish a minimum cost of buildings in the various districts to protect the land values. It should lease, not sell, the land, fixing the rentals at a figure sufficiently low to keep the workers from going outside the tract to find homes. Unless the size of the future population can be definitely foreseen, rentals of business frontages should be adjusted every five years, to correspond with the growth of the population, or perhaps, of the factory payrolls. Residential rentals could be made for fairly long terms—say fifteen years—since such land values, even in a rapidly growing town, do not necessarily alter much. The employer, if it be destined to remain a one-industry town, would have to become a partner in housing operations in some roundabout way, such as financing a building and loan association or helping with the financing of a housing corporation, in case private capital proves timid about building on leased land.

The income from land rentals at the modest rate of 4 per cent on the enhanced land values would be enough to amortize the investment and leave twice as much money for community purposes as the town would normally obtain from taxation. At least, that is the way it figures out in both Gary and Lackawanna.

The land company could afford to charge less than the traffic would bear, as the English companies do, and thus leave the worker money enough for good housing. Or, as I should prefer, it could charge close to what private landlords would exact and use these great revenues for services that would reduce the cost of living and have the same easing effect upon the personal budgets of the workers.

The same principles apply to the pressing problem of housing our American munition and shipyard workers. Let our Government create a Housing corporation with an appropriation. Let it condemn the lands it needs, build the villages and cities that are required, and rent the houses during the war. Then, when the war industries have been readjusted to permanent peace conditions, let the Government write off the excess and emergency cost of its housing adventure as a cost of war, and recoup the balance by selling the property, not to individuals, but to local non-profit land companies to be operated for community revenue. Thus will be created communities that are the owners of their underlying lands, possessors of all present and future increments therein, and enjoying revenues a hundred per cent above those of ordinary towns of equal size. In such towns, good housing could easily be achieved and maintained.

I would like to be the manufacturer, competing in the markets of the world, who drew his labor from such a town!

THE TREASURY DEPARTMENT NEW BUILDING DESIGNED BY CASS GILBERT

The New Program for Public Buildings in Washington

[NOTE.—The Public Buildings Commission, according to the act creating that body, was to have the advice of the National Commission of Fine Arts. Portions of the communication of the latter commission are given below.]

OBVIOUSLY the two great centers are the Capitol and the Executive Offices. Prior to 1902, the question of relocating the White House was discussed from time to time; but ever since the restoration completed in 1903, all such ideas have been abandoned. The historic White House on its original site may now be taken as a fixed fact. At the time of restoration the Executive Offices were removed from the residence to a building designed by the architects as a temporary structure. Then it was anticipated that in a not distant future Congress would provide for executive offices of a more dignified character, with suitable approaches. Congress, however, provided for doubling the size of the temporary building. Further expansions will necessitate a careful study of this perplexing problem. To build a second story on the present building would detract from the White House itself. This Commission calls attention to the seriousness of the problem and the necessity of careful study of all its phases before Congress shall commit itself to any further enlargement of the Executive Offices.

The Department of State

When the State, War, and Navy Departments were located in their present building, thirty-eight years ago, the State Department was well provided for. Its offices were convenient to the White House and were adequate in size. As the activities of the other two Departments have increased, the State Department has been compressed into smaller and smaller space, in spite of the fact that its own needs have grown with rapidity. As a consequence, this ranking Department, which represents the means of communication between the United States and foreign nations, has not space in which to use its current files.

In 1908, Congress recognized the necessity of a new building to be used exclusively by the State Department, and for that purpose purchased land on Fifteenth Street, south of Pennsylvania Avenue. When plans for departmental buildings were prepared, two years later, the State Department found itself shoved over into the Washington Monument grounds, on lands the use of which Congress never had sanctioned.

The location of the State Department far from the White House (with which it is necessarily in frequent intercourse), and also far from the natural center of diplomatic activities, has led successive secretaries to endeavor to secure a location both convenient and adequate. The location favored is Square 167. A tunnel connection could be made with the Executive Offices, and thus the close and confidential relations which must prevail between the two would be facilitated.

Again, that location would enable the State Depart-

ment to relieve the White House from those functions which are too large and of too general a nature to be accommodated properly in a building which is primarily a residence. The plans prepared eight years ago provided for apartments to accommodate guests of the nation—a need which was strikingly manifested during the year 1917, when foreign delegations of high diplomatic importance, on coming to Washington, were entertained in private houses.

The plans made in accordance with the requirements of the State Department in 1910 call for a building which would occupy nearly all of Square 167; and these requirements certainly are not less today than they were eight years ago. The square is adequate, but it is none too large for the purposes of the State Department.

Square 167 is not only the location best adapted to the requirements of the State Department, but it is also the most available area for purchase. The Government already owns a considerable portion of the land; other parts are rented for governmental or semi-public purposes; many of the buildings are of the kind known as "taxpayers," and none is of great importance. Degeneration has set in throughout the square, and ultimate Government occupation is foreshadowed. The location is desirable, not only from the standpoint of availability and convenience, but also because it is an essential part of the plan of locating public buildings around Lafayette Square, thereby creating for the Executive branch a group of buildings dominated by the White House. Such an arrangement would be comparable with the legislative group created by Congress, under the domination of the Capitol.

The Treasury Department

The Secretary of the Treasury has been authorized (by an act approved September 27, 1917) to erect at the corner of Pennsylvania Avenue and Madison Place "a suitable building, complete, for the use of the Treasury Department," at a limit of cost of $1,250,000, including the underground connection with the Treasury Building. Furthermore, he is authorized to secure special architectural and expert services, at such compensation as he may consider just and reasonable.

It may be presumed that Congress used the word "suitable" to mean that the structure shall be so designed that it will be in harmony architecturally with the White House and the Treasury, with both of which buildings it sustains close relations. Also, it may be assumed that the authorization to employ the aid of special architectural services was meant to empower the Secretary to secure the best ability in solving the problems of good taste, due subordination, and good order involved in the construction of a building to occupy so important a site.*

The real problem, however, involves more than the construction of a building to occupy about one-third of the frontage on the east side of Lafayette Square. Sooner or later this building must be enlarged to accommodate the fast-growing activities of the Treasury Department. This can be done by taking the frontage now occupied by a theater and a club. The building to be erected, therefore, should be designed with a view to such enlargement. Any other solution of the problem would prove both unsatisfactory and uneconomical.

Whether in the years to come the entire square will be needed is a matter for the future to settle. It may be pointed out, however, that the really important buildings in the block could be adapted to Treasury purposes. Such is the logical conclusion of the determination already reached of occupying one corner of a square which holds vital relations to the orderly development of a group of Executive buildings.

The necessary expansion of the Bureau of Engraving and Printing can take place on lands now occupied by the old buildings of that bureau. These buildings were unsuitable for occupancy long before they were replaced by the present bureau building. The force of Treasury auditors now occupying them should be housed in buildings of an office type located in the area between Pennsylvania Avenue and the Mall. In designing the new buildings for the Bureau of Engraving and Printing, consideration should be given to the fact that the present bureau building was very carefully studied as to its conspicuousness from the Lincoln Memorial. The extension building will occupy a site related intimately to the Washington Monument and the Agricultural Department buildings. These relationships should be recognized and provided for in the location and character of the new buildings. At the same time the extension of Fifteenth Street through the Monument grounds should be studied in its relation to the plan for creating a more adequate setting for the Washington Monument.

The War Department

If Congress shall see fit to assign to the War Department the entire building now occupied in part by that Department, the building will still be too small to accommodate all the War Department activities. It may be possible to gain additional space by reconstructing the roof, and, at the same time, possibly, the building may be improved by the removal of light-obstructing porticos and other architectural excrescences; and the architecture may be brought into more harmonious relations with the White House and the Treasury.

In addition to the main building the War Department will require all the Seventeenth Street frontage from Pennsylvania Avenue to New York Avenue. This requirement will permit the construction of a series of buildings of the office type, which can be connected under ground with the main building.

There will still be functions which may best be administered in buildings more remotely located. The Army Medical Museum, for example, will press its claims for enlarged space; and the same considerations which originally gave to that institution a location on the Mall would dictate its retention there, with space for enlargement. The museum character should be preserved, but at the same time various functions of the Surgeon General's office may be provided for in the new structure.

It is impossible to forecast the future requirements of the War Department. For many years to come the various bureaus will expand in ways now unforeseen, and temporary buildings will continue to be occupied for periods far beyond their natural life. The result will be that, as

*Mr. Cass Gilbert has been selected to design the building.—Editor.

APPROACH FROM PENNSYLVANIA AVENUE TO THE DEPARTMENT OF AGRICULTURE
The location of public buildings in the area between Pennsylvania Avenue and the Mall would provide dignified approaches to the Mall buildings

the temporary buildings deteriorate, large areas of Washington will present sad spectacles of dilapidation and squalor. This unfortunate aspect can be mitigated, provided that when conditions become reasonably permanent in any bureau, suitable buildings conveniently located be provided.

The Navy Department

The contemplated removal of the Navy Department from its present location involves the construction of a building in character suited to the importance of that Department and so located as to provide for the expeditious transaction of the business with the Executive Offices and the State, War, and Navy Departments. The importance of proximity cannot be overstated. This fact makes a location on Lafayette Square desirable—probably necessary.

It happens that on the site of the old Arlington Hotel a building 125 feet in height is now under construction. The extreme height of this building, combined with the character of its design, make the contemplated structure a menace to the architectural supremacy of the White House and to the new Treasury Building already provided for. This Commission regards the proposed hotel building as a menace to good looks and good order. If it shall be completed as designed it will disfigure an area on the proper development of which depends the dignity of an Executive group of buildings. It is inconceivable that such action should be taken with the assistance of the Government itself; yet the rental of the building for Government purposes has been proposed.

Even aside from the question of appearance, it should be considered that the upper floors of the hotel building will command the White House grounds from a distance of 200 yards and an elevation of 125 feet. During the summer the leaves of trees screen the White House, but during half the year there are no such obstructions. It is unwise to give such invitations to mischief.

The need of additional building areas in proximity to the White House is a reason why the present opportunity to acquire a site already cleared of buildings should be seized. A brick building suited to the needs of the Navy Department and of a suitable height could be built with the least possible expenditure of time; and, as opportunity offered, this building could be faced with stone and ultimately extended in that square. There are difficulties to be overcome, but there are objections to every suggested site, and in this instance the advantages far outweigh the objections.

The Department of Justice

Ten years ago Congress initiated legislation to provide for the Department of Justice a building located at the southeast corner of Pennsylvania Avenue and Fifteenth Street, but that Department is now occupying a private building, the erection of which was financed by its action. The policy of securing the erection of buildings by private parties for Government uses is open to so many objections that it can continue only until Congress shall develop some adequate plan to meet the emergency arising out of the unusually rapid increase in Government activities—an increase which the war has speeded up, but which began years ago.

APPROACH FROM PENNSYLVANIA AVENUE TO THE NATIONAL MUSEUM
These markets should be housed in government owned and controlled buildings

Legislation for a suitable building for the Department of Justice is now in such shape that the enacting of Section 10 of the latest Public Buildings Act, as a separate measure, would result in a proper structure in due time. The location of the Department of Justice on the proposed site is a step in the direction of "cleaning up the south side of the Avenue," which phrase has become a slogan with those persons who advocate restoring the preëminence of Pennsylvania Avenue as the great thoroughfare between the legislative and executive branches of the Government.

The Post Office Department

The Post Office Department occupies a building constructed for a city post office. The location adds to the importance of Pennsylvania Avenue as a thoroughfare. A quarter of a century ago this Department was housed in a building which possessed decided architectural charm. This latter building (now used as the temporary overflow offices of Chief of Engineers of the Army) deserves a permanent occupancy corresponding to its architectural importance. It is located on F and Seventh Streets, in one of the busiest (and noisiest) situations in Washington, but even so it has possibilities which should be improved.

The present Post Office Department building was designed at the time when American architecture was in a transition state, before the necessity for an adequate amount of light and air was sufficiently recognized even by Government builders. The style of architecture adopted had its brief day of novelty and popularity; then it retired because of its failure to fulfil modern requirements. The Government is fortunate in having but one such example among its public buildings.

The Interior Department

The office building on Rawlins Square was designed, not as the administrative building of the Interior Department, but as a means of housing the Geological Survey, the Bureau of Mines, and certain other bureaus. The Secretary of the Interior formerly had his offices in the building now known as the Patent Office, one of the most dignified and impressive structures in Washington. Ultimately, a departmental building will be required.

The Interior Department office building is of great size and houses a very large number of clerks; consequently it has had an important effect in shifting the center of departmental activity to the west; and this movement has been accelerated by the construction of privately owned buildings for the War, the Navy, and the Commerce Departments, for the Interstate Commerce and Civil Service Commissions, and also by the erection of temporary buildings for war purposes. The result has been to isolate the Capitol and to widen the gulf between the executive and legislative groups, as well as to create congestion in an area that had been devoted to small buildings of a semi-public nature (the Corcoran Gallery, the Red Cross Building, Continental Hall and the Pan-American Building), each of which depends for its effectiveness on park and landscape settings. Means for mitigating this unfortunate condition are discussed below.

The Departments of Commerce and of Labor

When the Departments of Commerce and of Labor shall be provided with buildings located on the lands along Fifteenth Street purchased for their use, a corrective of the westward movement will be applied. Both of these

VIEW OVER WASHINGTON FROM MERIDIAN HILL PARK
This outlook may be entirely shut off by the construction of an apartment house of present legal height

Departments now occupy rented buildings ill-adapted to use by large clerical forces, because of low ceilings, narrow corridors, inadequate elevator service, lack of storage space, and a character of construction which rapidly deteriorates and quickly gives to the buildings a shabbiness inconsistent with Government usages. None of these specially constructed buildings reaches the standards of construction used in private office buildings of the first class in the city of Washington.

Before final plans are prepared for these two Department buildings, consideration should be given to the activities they are destined to house. Among the newly created commissions are several which vie in importance with the Departments themselves. The character of the activities of these commissions would properly class them with one Department or another and in time (after the present exigencies shall have diminished) doubtless they will be so grouped. These manifest tendencies should be considered in the planning.

On the other hand, there are bureaus attached to these Departments which can most economically develop on locations especially selected for the uses of the particular bureau. An example is found in the Bureau of Standards, one of the bureaus of the Department of Commerce. When this activity was separated from the Coast and Geodetic Survey and established as a separate bureau under the Treasury Department, some seventeen years ago, sixteen acres of suburban land were secured; and from year to year one building after another has been added to this growing institution until now there are seven in the group. The buildings are of brick, substantial but modest in character, and harmonious one with another. The entire group of five buildings, together with the site, has cost $881,250, and there is still room for expansion. Moreover, the scientific workers of the Bureau of Standards have established a congenial community; the remoteness of the situation allows them to prosecute their work in freedom from interruptions and distractions due to urban conditions, and in summer they enjoy a temperature lower by some ten degrees than prevails in the city.

While it is not possible to enumerate all the activities which should have suburban locations, it is suggested that the Coast and Geodetic Survey, the Bureau of Mines, and the Geological Survey would find it to their advantage to secure suburban sites, and Congress would consult the economies by so providing, when questions of housing for these activities come up.

The Bureau of Fisheries, also attached to the Department of Commerce, now has a location on the Mall, and the museum features of its aquarium dictate that the much-needed new building shall be constructed on the site now occupied.

The Department of Agriculture

From a comparatively small bureau in 1889, the Department of Agriculture has had a permanent development more rapid than that of any other Department. So closely related are the functions of this Department that while a certain amount of segregation is practicable (as in the case of the Arlington Farm and the Weather Bureau), yet in the main a rather close proximity is desirable.

This Department requires for its efficient working the completion of the present main building. When this shall be accomplished, the inadequate, unsafe, and unsightly old administrative buildings now occupied can be demolished. Further expansion may be accommodated by a structure on the northern side of the Mall, which, because of convenience of access from Pennsylvania Avenue, might properly house the Secretary's offices. The various scientific activities may be accommodated in the area south of the present buildings. The type of building having already been established, it is necessary only to provide that new Mall buildings shall maintain the standards now fixed.

The Mall

The Mall was designed as a park connection between the Capitol and the White House, and the early plans call for a continuous development of the entire space, about one mile in length. During the slow growth of Washington, the Mall was cut into sections, each of which was subjected to special and individual treatment under a theory that avoided straight lines. The approach from the west to the Capitol, planned as an open public square, was fenced about and called a Botanic Garden. This garden was never put on a scientific basis, nor is it now attractive or effective as a garden. Congress annually provides an appropriation for the removal of the fence, and also has located within the garden precincts both the Grant and the Meade memorials, with the evident intention of restoring the area to its original purpose as an approach to the Capitol. This intention should be carried out.

Gardens might be established in the area purchased by Congress for the extension of the Capitol grounds on the north, where they could be developed in relation to the avenues, as a constituent portion of the Capitol approach. Like gardens might be established on the south of the Capitol. The propagating activities may well find a location on the spaces created by filling the James Creek Canal. The adequate solution of the problem, however, is to be found in the establishment of a national arboretum and botanic garden of the highest scientific standard. A careful consideration of the subject shows that this garden should be located on the Mount Hamilton tract, adjoining the Anacostia Water Park.

The general character of new buildings to be located along the Mall is determined by present occupations. The Smithsonian Institution, the National Museum, the Army Medical Museum, and the aquarium of the Bureau of Fisheries bring into the Mall daily throngs of visitors and sight-seers. The Freer Art Gallery, with its highly specialized collections, and the proposed George Washington Memorial, with its auditoriums for gatherings great and small, are essentially in character, and the nature of the Agricultural Department activities is not out of keeping with prevailing conditions. With continuous development of the roadways, the planting of the rows of elms, and the opening of the vista from the Capitol to the Monument, the American people will enjoy a composition which for dignity and attractiveness is unsurpassed in any city in the world.

In this area should be located the National Gallery of Art. Collections are now being gathered by the Smithsonian Institution, in accordance with its charter, which recognizes the fine arts equally with the sciences. Continuity in the administration of the Smithsonian Institution, together with the distinguished membership of its Board of Regents, marks this organization as the one pre-eminently fitted to receive and administer gifts made by patriotic citizens. The continued recognition by Congress of the Smithsonian as the trustees of the nation in handling trusts established for the information and enjoyment of all the people will encourage such gifts, and thereby will enhance the attractiveness of the National capital, both to visitors and also to those whose service makes them residents of Washington for longer or shorter periods. Due to the activities of the Government, this city has already become the scientific as well as the legislative and administrative center of the country. It may readily become, also, the general intellectual center of the nation. The Library of Congress and the Smithsonian Institution are the most potent instruments for attaining this end. Ample space in the Mall should be reserved for galleries and museums to house collections that are now offered only to be declined for want of room.

The Area South of Pennsylvania Avenue

Pennsylvania Avenue is the great thoroughfare connecting the legislative and executive branches of the Government. The character of the occupancy of the area between the Avenue and the Mall is low, and the tendency of retail business toward the northwest is steadily working for further deterioration. Nothing short of radical measures to bring this area into a higher grade of occupation will save the situation.

The approach to the National Museum and the Smithsonian is now through streets largely given over to the sale of produce, live animals, and other concomitants of open-air markets. If the markets are to remain in this area, they should be put in order, preferably by the construction of market buildings around an open court. For this purpose some of the existing streets might be included in the market arrangement. The ownership and supervision should be in the District of Columbia, as in the case of the Fish Market now approaching completion on the water-

THE SOUTH SIDE OF PENNSYLVANIA AVENUE
The fence should be removed from the Botanical Garden and the buildings should give place to public structures with suitable landscape settings

front. The entire market problem should have comprehensive study, to the end that present disorderly conditions may be remedied and each of the approaches to the Mall from Pennsylvania Avenue be made suitable.

Such public buildings as may conveniently be placed in this area should be so located. These buildings would include an armory, office buildings for auditors of the Treasury, like buildings for the permanent commissions, and the subordinate buildings of the Post Office, the Commerce, and the Labor Departments, and of the District of Columbia.

Here, too, may be located the Bureau of Archives, an institution urgently demanded on the score both of economy and utility. At present the Government archives occupy valuable space in buildings of the first order, and even there they are packed away so that they are not available to the Departments themselves. They are always a fire-risk to the building in which they are stored, and they are in constant danger of being destroyed, as has happened from time to time. By reason of theft and mutilation, many of the most significant and valuable archives have been lost or destroyed. No other civilized government is so regardless of its archives.

The archives of a nation are the basis of its history. They should be housed in a fireproof building and should be classified, arranged, and indexed so as to make them available both to Government employees and to students of American history. The building should be designed chiefly for the purpose of storing documents; it may be simple in character, with adequate rooms for the office force and for the consultation of documents. So constructed it would relieve the Departments, where space is always in demand, and at the same time it would expedite their work in making researches.

In the location of permanent Government buildings consideration should be given to restoring the balance now so seriously disturbed by the renting of buildings west of Seventeenth Street. This result can be accomplished by occupying with public buildings the south side of Pennsylvania Avenue from the Treasury to the Capitol. This consideration gains importance when the housing of employees is concerned. The great area of moderate-priced residences lies in the vicinity of the Capitol. At a time when improvements along the Anacostia tend to bring into residential use very large areas of the most attractive lands in the District, it is not good policy to mass office buildings in portions of the District where fashion is the controlling element in creating prices. The convenience of the great body of clerks would be consulted by the location of public buildings east of Seventeenth Street, and this should be the policy, except in cases where relations to dominant buildings already established control the locations of subordinate buildings.

Another and strong consideration is the convenience to Senators and Congressmen in conducting their daily business with the executive branch of the Government. The present westward trend is calculated to consume unnecessarily the time of legislators, whereas the location of public buildings between the Capitol and the White House groups would aid materially in reducing the time necessarily spent on executive visits.

Experience teaches that once the Government acquires land in the District of Columbia, there are activities ready to use it advantageously. The main thing is to direct the location of public buildings so as to produce a harmonious development of the city. In this case it is the Capitol group which needs such protection as may be given simply by directing aright the purchase of building-sites that must be secured in one locality or another. The utilization of the area south of Pennsylvania Avenue would benefit the very center of Government life.

The Legislative Group

The Capitol was located nearly in the center of the city of Washington as originally laid out. The development of the city toward the northwest has been going on at a constantly increasing rate until now Capitol Hill is remote from social and business life. Meanwhile a legislative group of building is developing, with every promise of a final result of the very highest character.

The settlement of the railroad problem fifteen years ago made possible improvements of an ideal kind. The tracks

VIEW FROM THE LINCOLN MEMORIAL—LOOKING NORTH
If the new buildings of the Public Health Service shall be built upon a terrace, a larger area will be gained and a frame will be made for the Lincoln Memorial

were removed from the Mall, thus permitting a restoration of that space to its intended purpose as a continuous park. When a monumental Union Station, with a spacious plaza, was constructed as the entrance to the District of Columbia, the architects carefully studied its relations to the location and designed the station in such manner as distinctly to subordinate it to the Capitol. The same idea of subordination was expressed again in the city post office building adjoining the station.

Also, the architects employed by Congress to design office buildings for the Senate and House exercised like restraint, and thereby enhanced the dignity and grandeur of the Capitol. Next, Congress purchased the squares on the north, between the Capitol and the station, thus making possible on that side an approach of the highest impressiveness. The proper development of this now vacant area requires the location on it of buildings as well as gardens. These buildings when constructed doubtless will maintain the same high standards.

On the east, the square between Maryland Avenue and East Capitol Street should be reserved for a building to be erected for the use of the Supreme Court, at such time as its own requirements or the pressure by Congress for space in the Capitol shall lead to the removal of the Court. When this time comes, Maryland Avenue should not be closed, as was Pennsylvania Avenue when the Library of Congress was built, with the result of destroying one of the great vistas so carefully planned.

The development on the Senate side of the Capitol establishes the precedents for the treatment of the House side. There conditions are much the same as those which prevailed on the north before the purchase of squares between the Capitol and the Union Station. The objective which the station supplied on the north may be found on the south in the Army War College and Engineers' School of Application. The continuous development of Delaware Avenue and a boulevard treatment of the James Creek Canal spaces would enhance the appearance of the Capitol, and develop an area sorely in need of such treatment.

The Height of Buildings

Congress has undertaken to limit the height of private buildings fronting on Government-owned structures, but no provision has been made to protect the parks, which need such protection quite as much as do the public buildings. Meridan Hill Park, for example, was purchased because of its commanding view over the city, but today the chief value of that park may be destroyed by the erection of buildings which will completely obstruct the outlook from it. The same is true with Potomac Park in the vicinity of the Lincoln Memorial, where irreparable injury may be done by the construction of high buildings along B Street.

This Commission recommends that on streets adjacent to public parks no building shall be erected to a height exceeding 85 feet. And throughout the city a like limit would result in a more uniform development and a consequent equalization of land values. Whatever height the Government sets for its own office buildings should likewise be imposed on private structures.

The preparation of plans and the beginning of construction will require one or two years. By the adoption of a comprehensive and carefully considered building programme at this time, Congress will be able to provide for the adequte permanent housing of the forces employed in executive work as the temporary structures now resorted to fall into decay. Hesitation and delay will bring the National Capital to a condition of seeming dilapidation.

The necessities of the present time are the opportunities of the future. The Secretary of the Treasury expressed succinctly the advice the Commission of Fine Arts would offer, when he said

"It is to be hoped that the work of the Public Buildings Commission will result in the adoption of a logical, continuous building programme, having in view, not only the adequate housing of all Departments, but also the harmonious development of Washington."

Ways and Means of Securing Improved Housing

By EDWARD T. HARTMAN, Secretary of the Massachusetts Civic League

WHEN I went to school, the youngsters spent a great deal of time trying to demonstrate that if A, B, C, and D worked it right, A could lift B, B could lift C, and D could lift C, and D could lift A. The four were therefore expected to ascend indefinitely. But they didn't.

This illustrates most of what has been done in this country toward a solution of the housing problem. It has been studied and worked in a too isolated way. We have written laws to make houses better. Laws do not enforce themselves, and political administrators do not particularly well enforce them. Laws will not make people build homes to rent; they tend rather to prevent people from building. Laws do not reduce the cost of homes; they increase the cost. Housing laws do not increase wages; they, in effect, decrease wages.

There is no mystery about what the country needs. It isn't that something should be suppressed, like dark and poorly ventilated rooms. It is that something should be promoted, like light and well-ventilated rooms. The thing sought is a number of healthy homes sufficient to supply the needs of the people.

A manufacturer is perfectly willing to write off his machines and junk them when better ones appear. Houseowners write off the cost of the houses and then continue to use them and to force others to use them. There's a reason.

If, then, we want to secure improved housing, we must go at the problem directly. Houses are an economic problem. By the operation of proper economic laws an abundant supply of good homes can be provided. The operation of such economic laws will even make laws regulating light and ventilation unnecessary. They will promote the building of homes, and the abundance of homes will mean that they will be good homes or they will not be used.

What can the Government do? One thing it can't do is to build and supply homes at the cost of the taxpayers. That would only add to present unreasonable burdens. Government can, however, put into operation the necessary economic laws. It can go farther. It can lay out land and build homes, to be sold at a slight advance above all costs, to show how lands should be laid out and homes built.

To build at a charge to the taxpayers is trying to make the mass lift the mass. To put economic laws into operation is to apply proper engineering principles to lifting the mass.

Let us illustrate. A man in Massachusetts built toilets in a number of his tenements. The taxman came along and assessed an additional $500 on each tenement. The man built the toilets voluntarily, but the result would have been the same if our housing law writers had forced him to do it. The tenements were improved, but the rents were increased or the man lost money and will improve no more tenements. Wages were not increased. The lifting process didn't lift.

Another illustration. A man built a house. The assessors came along and assessed the house at 115 per cent of its cost. They assessed the land at 600 per cent of the assessment on the land from which the lot was bought, at 1400 per cent of the assessment on land on another side and at 1900 per cent of that on land on a third side.

All the laws in Christendom aren't going to promote the production of good homes under such conditions, and the production of good homes is what we are after. The system we use effectively prevents the scrapping of houses long after it should be done. This is why homes are not scrapped, but are used and used and still used till slums are found in every city and town.

There is no hocus-pocus about the production of homes, though a lot of it is being tried. We have tried much at relieving the scales of our weight by lifting at the platform of the scales. Most of what we have tried is useful if properly applied. Laws will help. They voice the sentiments of the people and establish standards, but they do not provide good homes; they do not encourage the building of fit and proper homes in abundance.

I was asked to discuss methods of providing good homes in a general way. Now that I am at it, I feel with the Irishman who, upon seeing his first giraffe, remarked to his companion, "Pat, there ain't no such animal."

Let us get at it directly. The home a man can build for himself or that another can build and rent to him is a purely economic problem. He must carry the fair costs of the home. It is not a solution to give the man a subvention or to give one to the man who rents it to him, in lieu of rent lost. He must pay his own way.

Taxes have been mentioned. What have they to do with it? Practically everything. Taxes are laid for the purpose of meeting communal expenses. But we use a system of taxation which takes from men's earnings while we should use a system which takes from communal earnings. There are communal earnings in abundance for all needs, but these we allow individuals to appropriate while we tax upon earnings what we need, and a lot that we waste in addition.

There exists a barren and unoccupied space. Let's call it Gary. Homes are built. Streets, transportation facilities, water-supply, sewers, schools, churches, all sorts of conveniences are supplied, and the land becomes very valuable. Everybody created that value and everybody, that is the community, should have it. We give it, however, to the man who holds idle land and tax heavily improved land and improvements. We should tax equally all land of equal value.

To take the community increment would relieve wages and industry. It would prevent the holding of idle lands and give every man all he needed for a home, for a garden, for industry. The land would call for workers, and wages would be not only untaxed but high. Industry would be freed and could expand. Lots in the partially developed area would be available and would be used in preference to outlying lots, thus doing away with the necessity of still further taxing earnings to provide more streets, water-

supply, sewers, and transportation and all else over enormous areas only half utilized and adding more unearned values to still more idle land.

Homes would be plentiful and therefore cheap. If a man improved his home he would not be taxed an additional amount. So he would have a good home. If he rented he would have a good home because of the competition provided by the abundance of homes.

As long as we allow the individual to appropriate the community-created increment, generally not even taxing him on it, we give him that with which he increases rent, increase upon increase. He has capitalized what the people produced and should have. This is the greatest single factor in the housing problem, and to solve the one we must solve the other.

Put it in the words of Henry Campbell Bannerman: "You and I side with the public interest. Let the value of land be assessed independently of the buildings upon it, and upon such valuation let contribution be made to those public services which create the value. This is not to disturb the balance of equity but to redress it. There is no unfairness in it. The unfairness is in the present state of things. Why should one man reap what another man sows? We would give to the landowner all that is his, but we would prevent him taking something which belongs to other people."

In short, we would attach to land a use-value, and the man who held land would pay the use-value. If he had no use for it he would not hold it. What would this mean? What would it not mean? It would do more than any other one thing to solve the housing problem. And it would solve a lot of other problems quicker than the methods now being applied to them. For most social problems are at bottom economic problems. We, our laws, our courts, our customs, and our institutions recognize this, but we make it the problem of the few while we must make it the problem of all. The property rights of the little fellow must be just as sacred as the property rights of the big fellow.

There are a few things incidental to the problem and its solution as outlined. Laws are needed because the community must be in a position to look after all conditions which may arise. There is no universal panacea. Useless as they are alone, laws will help till the millenium is more visible than at present. They will prevent poor homes from being forced upon people while proper economic laws are working towards universal supply of good homes.

Having looked after the main economic principles, the establishment of which will do so much, I would crave a word with laborers. Anyone who has read thus far will not doubt that I consider the laborer worthy of his hire. But let him take thought of himself and his duties in all that must be done. Studied loafing, measured stints, and such like will not help solve the problem. If a man must charge rental in proportion to the cost of construction, what will happen if he employs a group of loafing laborers to build homes to rent to this same group? It works ultimately to the same end, whoever rents the homes. Every day of loafing reacts on the laborer just as much as does the appropriation of an equal amount of unearned increment by someone else.

Just a word as to architects, critical but intended to be constructive, for no one doubts their importance or possibilities in the matter. They give too little attention to service and convenience inside and too much to isolated façade. Convenience and effective service are big problems largely awaiting development by architects. We can also practise in architecture what we may so readily observe in nature. The leaves of no two trees are alike, either in form or color, and yet they are all shot through with that quality which spells harmony. This is true at all stages of development and of changing color. No two apples on a tree are alike. There is individuality, there is variation in size, but there is harmony. On the other hand, a study of practically any street, even where houses are expensive, and each is specially designed by an architect, will show a medley of architectural design which lacks harmony. It is not restful. The work on units may have high artistic value, but the whole is unharmonious, it is incongruous, it is not pleasing. I do not need to point out why.

The home, to be worthy of the name, must be healthy and convenient and, to serve its fullest purpose, it must form a fitting part of the community in which it is located. For this quality we must look to the architects. They will doubtless do their part when the people are ready for them. As long as people will buy façade by the square foot, they must expect to have it supplied to them in that way.

When it is better to have land in use than idle, when homes seek use, when a useful and beautiful home is not made to pay a penalty for its usefulness and beauty, then will homes be plentiful, useful, and beautiful.

Home-Ownership in New York City

To the Editor, Journal of the American Institute of Architects:

The November issue of the Journal contained some general statistics relating to home-ownership. A study of the conditions surrounding this now almost extinct institution in New York City should be of more than local interest.

The proportion of rent-payers is increasing; the proportion of home-owners decreasing. Tenantcy is becoming the universal rule and home-ownership the rare exception. The ownership of a free home is a tradition of the past. If the present tendency continues, it will only be a question of time when the ownership and use of land in New York City will be completely divorced, and the whole city will, in effect, stand in the relation of a tenant to an absentee landlord.

The percentage of owned homes in the city is declining; that of rented homes increasing. In 1900, one family in every eight owned its home; in 1910, only one family in every nine owned its home. In 1900, one family in every twenty owned a free home; in 1910, only one family in twenty-eight owned a free home. In 1900, 42.2 per cent of the

owned homes were free homes; in 1910, 30.2 per cent of the owned homes were free homes. During this ten-year period the total number of homes in the city increased 41.2 per cent; the number of free homes declined .8 of 1 per cent. The number of free homes in the city, instead of being increased by the erection of new homes, lost one of the homes owned free in 1900 for every thousand new homes constructed during the decade.

Out of every thousand new homes constructed in the decade, 110 were owned homes. In Chicago 290 were owned homes; in Cleveland, 312; in St. Louis, 327, in Philadelphia, 451. In only one of the next five largest cities was the number of owned homes per thousand new homes less than in New York. In Boston it was 88. Of the fifty-one cities in the United States with a population exceeding 100,000 the number of owned homes per thousand new homes was probably greater in Spokane than in any other city. There it was 584.

The number of free homes per thousand new homes was a minus quantity in New York City, but in Philadelphia 95 out of every 1,000 new homes built were free homes; in Cleveland, 112; in Chicago, 126; and in St. Louis, 173. Even in Boston it was 8. In Spokane it was 283.

Chicago, with less than half as many homes, has more owned homes than New York City, which has only two-thirds as many free homes as Chicago. Philadelphia, with less than one-third the number of homes, has more free homes than New York City.

The situation affecting home-ownership in the city may be epitomized under four points:

1. The number of rented homes is increasing faster than the number of owned homes.

2. While there is an increase in the number of owned homes, this increase occurs not among the free homes, but exclusively among the encumbered homes. In fact, there are more homes mortgaged in a given period than there are homes purchased. In other words, the encumbered homes are increasing at the expense of the free homes whose owners are gradually either mortgaging them or disposing of them to join the tenant class.

3. The owners of encumbered homes are not paying off and canceling their mortgages in order that they might become the owners of free homes. A new lien is contracted for every mortgage liquidated on an owned home.

4. Only a moiety of the equity is acquired in any new home purchased. For every home in which a full equity is acquired, another home is mortgaged.

Yours very truly,
HERBERT S. SWAN.

The New Income Tax*

The computation of income tax under the new law, has been officially explained by the Treasury Department, which announces that, in the case of an unmarried individual, the figures would be as follows:

Net income	$10,000 00		
Specific exemption	6,000 00		
Subject to excess profits tax	$4,000 00		
Taxable at .08	320 00		
Net income	$10,000 00		
Less excess profits tax	320 00		
	$9,680 00		
Less specific exemption	3,000 00		
	$6,680 00		
Normal tax of 2 per cent	133 60		
Net income less excess profits tax		$9,680 00	
Less specific exemption		1,000 00	
Taxable at 2 per cent (new law)		$8,680 00	
Tax thereon at 2 per cent		173 60	
Net income in excess of	$5,000 00	4,680 00	
Surtax at 1 per cent on		2,500 00	$25 00
Surtax of 2 per cent on		2,680 00	43 60
Summary:			
Excess profits tax		320 00	
Normal income tax (old law)		133 60	
Normal income tax (new law)		173 60	
Supertax under new law		68 60	
		$695 80	

*See the tentative calculation published in the Journal for November.

The Department points out that in the case of corporations, the new law imposes no surtaxes but a graduated excess profits tax. The exemption or deduction to which a corporation is entitled is measured by a certain percentage (not less than 7 per cent nor more than 9 per cent) of its invested capital. Assuming this sum to be $50,000.00, with pre-war earnings of 9 per cent thereon, the computation would be as follows:

Invested capital, $50,000 00 Net income		$10,000 00
Percentage deduction at 9 per cent	$4,500 00	
Specific deduction	3,000 00	7,500 00
Amount subject to excess profits tax		$2,500 00
Amount of net income in excess of the deduction and not in excess of 15 per cent of the invested capital		2,500 00
Rate of tax applicable, .20		
Amount of excess profit tax		$500 00
Net income of corporation	$10,000 00	
Less excess profits tax	500 00	
Taxable at 2 per cent (normal income tax)	$9,500 00	190 00
Taxable at 4 per cent (war income tax)		380 00
Total tax against corporation		$1,070 00

For these figures the Journal is indebted to Franklin H. Wentworth, Secretary of the National Fire Protection Association, who has made his correspondence with the Treasury Department available to us.

Letters* from an American Architectural Student in France

June 16, 1917

We are back again now at the front, at quite a famous place—in fact the Mecca of all American Ambulances. And there is going to be something doing—we are all pretty sure of it. Enormous preparations and great bodies of troops and "ravitaillment" on the road. "Ravitaillment" is a peculiar word; it means supplies of any kind from a pair of shoestrings to a marine gun.

Two weeks ago Sunday we played soccer with the team from the 47th Regiment. Of course they won—2 to 0—but then it was lots of fun, and they were good sports and played an exceedingly clean game. Their team was composed of both officers and privates, which shows how democratic this French army is. The audience was entirely made up of soldiers, the men and officers mingling. I never had as much exercise in all my life as that game. Afterward we all had our pictures taken together. Then we went to a little glade beside a town in which they had built a small open-air stage, and there was an amateur entertainment. Quite good, however, one man playing the violin very well, while another was a good acrobat.

Last Saturday I was sent over to a little town twenty miles away, the headquarters of the "Service de Santé" of this section. We all take turns at it—four days at a time. Over there we sort of play messenger-boy and chauffeur for any stray doctors who happen to have need of us. I had contemplated a rather dull time, but after it got started I rather enjoyed it, and before it was over I decided that I had never really had quite so interesting a time in my life. To begin with, it was a little town boasting only four streets, each one about twice as long as the ordinary football field. There was very little work done—almost none—merely taking officers to a dentist or something like that. I ate with a bunch of brancardiers and hostlers. It was regular French army rations. They were all right. Coffee and bread between 7 and 8 A.M.; a plate of meat and macaroni, one cup of wine, salad and bread at 11 A.M.; and a plate of soup, one cup of wine, one plate of meat and vegetables and bread, occasionally jam, at 5.30 P.M. I heard that the German prisoners get the same fare (minus the wine and jam), which I should say was very ample, as it satisfied me—one who has practically always had his hunger satisfied to his taste.

The runs from that town were fine. On one occasion I got lost with a sick man in the car. True to the family failing, I kept on going. Finally I came to a canal. At the edge of the canal there was a little forge, and, lying by the banks, were some specially made barges on which were mounted huge naval guns. I went down to the forge to ask the way and was met by an elderly seafaring man with an enormous black beard covering a striped jersey; his ears were ringed and he was unspeakably grimy. He insisted on shaking my hand, and before I could ask him anything he launched forth into his family history and past, which speech lasted some fifteen minutes. He came from Brest, had been to America several times, and was loud in his praise of our country. In fact, at the present moment they all are the same way over here, and I understand gave Pershing quite a reception when he arrived. They expect great things of the American division and are eagerly looking forward to its coming. I am afraid that our first contingent will have a lot to live up to and will undoubtedly be up against it, for they will be given a hard nut to crack—like Craonne—and it is up to them to come through. They can't come over here and sit tight, but will be more or less like the Canadian, Australian and French colonial troops.

I also met there a young engineer, a sous lieutenant, who had lived in England. He spoke English quite well, and told me lots about the prisoners. The Germans, when they are taken from the trenches, look wretched. This is true; I have seen them. After a month or so of prison fare and healthy work, they pick up and look quite well, pink-cheeked, and seem contented. I have seen squads of them going out to work, and one certainly can't say that the German army is made up of old men and young boys. These were men in the prime of life. Several wore the coveted Iron Cross.

July 23

Last Sunday I started work in earnest. It seems that everything happens on Sunday, at least that has been my experience. Well, last Sunday I had to do about the meanest piece of business that I have ever done—if one can describe it that way. Nauseating is perhaps a better adjective, but here one has not time to think of that affliction. Two of us went up to the "Tirage" in the town to wait for any special calls that might come in—a sort of emergency car. We had been sitting there several hours bemoaning our fate and lack of excitement, when, whizz! bang! the Germans began to toss some shells into the town—real big ones. We could tell by the noise that they were falling about a quarter of a mile away. Soon the call came for us. It appears that the Germans had been trying their luck at tearing up a railway yard and depot at the end of the line. In a measure, they succeeded. I hope that I never again will see such a sight.

As we neared the place, there was no one in sight, and just as were about to enter the yards a military gendarme rushed up and warned us not to go in as the Germans were still shelling the place. But being somewhat foolhardy from want of excitement, we went in. The place was a maze of little narrow-gauge tracks between which were piles of lumber, munitions, and other military freight. We went to the office, but there was nobody there; they they were all in the cellar, having left everything lying round. I could have filled my pockets. Finally a man came up and volunteered to show us where the wounded were. We had not far to go. Around a pile of lumber were three killed and about seven wounded. It was the first time I had seen really bad wounds which had no dressing to speak of on them. (You see, all wounds are fairly well covered at the front-line postes, ordinarily.) All the men hit were old—the men who work the trench engines—engineers and firemen—men for whom the glamor of war does not exist-

*The letters of Edmund Randolph Purves, continued from the last issue.

the glory and the shouting never reaches them. To be struck down and mangled when at work on a daily task is certainly a nasty side of the war, but you must remember the Boches were justified in shooting men who were engaged in the nefarious business of hauling shells. It is this part of the war which people never think of—they imagine it is all a game of charging trenches and spearing Germans. They never think of the luckless devil toiling back of the lines who is sent to his grave or crippled. It has to be, but it seems a shame that old men come in for this, and yet it is a daily occurrence.

We carried away three men; they were lying on improvised couches, and a few men were working feverishly over them. One had his left side torn, his arm mashed, and one eye blown out. One could see with half an eye that he was beyond all help, nevertheless we lifted him onto a stretcher. The stretcher broke; you can imagine how we felt. We finally got him into the ambulance, but he died on the way to the hospital. I have never had a man die in my ambulance before. It is not a very pleasant sensation, I can assure you. There was also a big, fattish, old man; a piece of shell had gone through his thigh, smashing the hip-bone and making a nasty flesh-wound. He started screaming the minute we lifted him onto the stretcher and did not stop. I never heard such yells as he gave vent to when he was being operated on at the "tirage." You could hear him blocks away; you see, anesthetics are not often used. The third one had a pierced hand. He was very stoical and a great help. The whole thing is really beyond description—the heat, the yells, the grime, and the entire setting—nothing exciting about it. I have always been afraid of failing ever since I cut my finger open several summers ago, but really when you come up against it you can always pull through. The only relief came from a French "poilu" who wandered up and asked in good Irish "What the hell is all the row about?" and from the satisfaction of having been the first ambulance on the spot and of doing our work. One man there had had his leg partly blown off, and dirt had been forced into the wound. He was conscious and never groaned once. I hate to think of the noise I would have made had that happened to me.

The other day I was sent up to the poste which we have taken over. We only go up there just before dark and leave at dawn, as the road is supposedly very dangerous in daytime, which may or may not be true, but all at events it is safe compared with the road we used back in the old sector all day long. In the daytime we wait for the wounded by a canal bank. The canal runs at right angles through the lines, and the "blesses" are brought from the front-line poste by motor-boats, which give them a wonderfully comfortable ride.

Nothing more exciting happened than my being sent up in the hills to fetch a wounded man and, incidently, to help out a Frenchman who had taken a Ford staff car up there and had got into difficulties with his machine. The country up there is peculiarly interesting, having been No Man's Land within the past year. One goes up over the ridge, passes out of sunny French farming land into a wild man-made country, just a low hill, too. The rolling hills were once covered with real tangled forest, of which not a vestige remains. The ground it pitted with shell-holes, but a curious, thick, ragged crop of coarse weeds and grass has grown up all around, hiding everything but the trenches which crawl over the undulating hills like some great geometric snake. Toward dusk the hills turn dark brown and purple, which must be, I imagine, like the English moorland, which I hope to see some day.

This appearance is enhanced by the little cabins and dugouts that the Frenchmen have built for themselves and which give the whole place a wild sort of look. On the way there we passed a place where an artillery caisson had been hit. The wagon had been removed, but the horses were lying there in the hot sun, all swollen up and covered with great wicked flies—not a very pretty sight either. Coming back, we passed the spot where once stood the village of F————. Now there is just a heap of rocks marking the spot where the church stood—the exact location of the rest of the town is a subject of controversy. We also passed through the remains of a famous woods, of which I have often seen photographs—very interesting, but not very pretty. I never believed that man could so change the aspect of the country in such a short time, by destructive work; constructive work is another matter.

Neither is there much left of the town where out poste is, the one house which still looks like a house; the rest of the place is conspicuous for its absence. The "abri" up there is a work of art.

But to come to the greatest thing that has happened to me yet, and why. Last Sunday was a clear, sunny day. About nine in the morning a German observation aëroplane was discovered, and a French fighter went up after him. The beauty of the whole thing was that it happened in plain sight of our camp, and we saw every bit of the fight. It was a splendid affair. The Frenchman won—it appears that he killed the pilot and wounded the observer. At all events, the German machine suddenly wavered and then commenced to fall, not like a shot, but like a feather, the farther it went the slower it fell, turning over and over like a piece of bent tire dropped in a well. It fell just in the outskirts of the town; the pilot was killed but the observer lived—a very lucky escape.

I was sent up to the "tirage" to do evacuation work later in the day. My first passenger was the German observer. The poor man was all shot to pieces—arm and leg broken by mitrailleuse bullets, and internal hemorrhages. He was quite young—about my age—and except for his uniform he looked exactly like a Frenchman—very intelligent. I gave him as easy a ride as I could, but the road was bad.

That started things going. From then on I drove all that day and all night, save for one hour and a half, till 9 o'clock the following morning. When I say driving, I mean counting in the duration of the stops. Most of the wounded were young French boys—very, very brave fellows—men who never groan, usually smile, and try to look bright and cherry, which is evidence of a splendid morale.

It is funny here—the way things are done. Everything is so quiet and dead in the daytime, and then as soon as it begins to get dark, the roads are thick with auto trucks, wagons, troops, and guns—a continuous procession going up one side of the road and the ambulances tearing down the other. In some ways evacuation is better than front-line work; at all events it is harder. Luckily we have both here.

Institute Business

Nominations for Officers

Mr. Fenner Declines the Nomination for President

To the Secretary of the Institute.

With profound appreciation of the distinguished honor which has been tendered to me by members of the Michigan and Philadelphia Chapters in nominating me for the Presidency of the Institute, and after conference with those upon whose judgment I rely, I have reached the conclusion that the best interests of the Institute will be served by my withdrawing my name from consideration.

Will you be good enough to convey my decision to the members of the Institute through the official channel?

Faithfully yours,

BURT L. FENNER.

Mr. La Farge Nominated for President

To the Secretary of the Institute:

For the office of President of the Institute for election at the next Convention, we, the undersigned members of the Institute, nominate Mr. C. Grant La Farge by this petition, according to Article IX of the By-laws:

Robert D. Kohn, Charles Butler, F. L. Ackerman, Frank E. Wallis, Frank Goodwillie, F. H. Bosworth, Jr., New York Chapter; Edward A. Stevens, Boston Chapter; Irving K. Pond, Allen B. Pond, Melville C. Chatten, Albert Moore Saxe, R. W. Zimmerman, Charles H. Prindeville, Henry K. Holsman, Howard Shaw, Charles D. Waterbury, Illinois Chapter.

Mr. Jensen Nominated for Second Vice-President

To the Secretary of the Institute:

The undersigned Fellows and Members of the American Institute of Architects place in nomination for Second Vice-President, Elmer C. Jensen, F.A.I.A., of Chicago, Ill., member of the Illinois Chapter, Past President of the Chapter, and now finishing his term as Director of the A. I. A.

Parke T. Burrowes, Seth J. Temple, R. J. Clausen, Walter O. Kruse, Eugene H. Taylor, Chas. A. Diemen, J. M. Gardner, H. E. Hunter, Fred J. Heer, Geo. H. Washburn, W. F. Weibley, G. M. Kerns, Frank E. Wetherell, H. O. Rawson, W. T. Proudfoot, Wm. L. Steele, of the Iowa Chapter; John M. Donaldson, Wm. B. Stratton, D. J. von Schneider, M. R. Burrowes, H. Maxwell Grylls, Fred L. Smith, R. Mildner, Adolph Eisen, John Scott, Arthur H. Scott, Geo. D. Mason, of the Michigan Chapter; Allen B. Pond, C. Herrick Hammond, M. C. Chatten, W. Carbys Zimmerman, Albert M. Saxe, R. W. Zimmerman, Webster Tomlinson, Richard E. Schmidt, Ira W. Hoover, Charles D. Waterbury, Henry K. Holsman, D. H. Burnham, George W. Maher, Charles H. Prindeville, Robert C. Berlin, N. Max Dunning, George Beaumont, H. B. Wheelock, F. W. Puckey, Arthur G. Brown, Arthur Woltersdorf, Irving K. Pond, of the Illinois Chapter; Thomas L. Rose, Fitzhugh Scott, Peter Brust, Richard Philipp, Alexander C. Eschweiler, H. J. Rotier, Wm. H. Schuchardt, Walter H. Judell, of the Wisconsin Chapter.

The Next Convention to be held in Philadelphia

By resolution of the Board at its meeting on January 18 last, an account of which will appear in the next issue of the Journal, the next annual convention will be held at Philadelphia on April 24, 25 and 26. In the circulars which were sent out to all the Chapters, asking for an expression of opinion as to the advisability of holding a convention this year, and, in the event one was held, the form it should take, there were outlined two plans. The first of these seemed to be the preference and has been adopted. The plan provides that each Chapter having six or less delegates shall send one, while larger Chapters shall send one delegate in four.

The following important matters were among those considered by the Board:

Amendment to Circular of Advice and Canons of Ethics relative to advertising.
Report of Public Building Commission.
Execution of building contracts by an architect.
War service work of the Institute.
Report of Committee on Building Conditions in the United States.
Suggested amendments to Institute Constitution and By-laws and Chapter Constitution and By-laws.
Fellowships.

A Proposal for a Limited Convention, with the Continuation of the Present Officers Until the Convention of 1919.

In this national emergency the undersigned believe that the Institute is not justified in holding a regular Convention with all the expense involved, and that it would perhaps be well to make no change in the officers.

A limited Convention could be held with little or no expense, and routine business attended to. The election of officers is routine business, and such election, in the opinion of our counsel, must be held.

We believe it is to the interest of the profession to continue the present officers. To reëlect the President and the retiring Directors requires a change in the By-Laws, Article 10, Section 2, and Article 11, Section 1. To accomplish this we propose a change in the By-Laws, and, when this is passed, the nomination of the retiring officers.

We propose that the By-Laws be amended by the addition of the following Article 17:

"The provisions of Article 10, Section 2, and Article 11, Section 1, relating to eligibility to reëlection of President and Directors are suspended for the duration of the war."

We nominate the following: For President, John Lawrence Mauran; First Vice-President, C. Grant La-Farge; Second Vice-President, W. R. B. Willcox; Secretary, W. S. Parker; Treasurer, D. Everett Waid; Directors: Charles A. Coolidge, Charles A. Favrot, Elmer C. Jensen.

These nominations were signed by: Arthur Wallace Rice, R. Clipston Sturgis, Henry H. Kendall, J. Randolph Coolidge, Jr., Harry J. Carlson, Frank W. Ferguson, C. H. Blackall, Charles D. Maginnis, of the Boston Chapter; M. B. Medary, Jr., John P. B. Sinkler, C. L. Borie, Jr., Frank Miles Day, of the Philadelphia Chapter; Wm. A. Boring, of the New York Chapter; S. S. Labouisse, of the Louisiana Chapter; E. C. Klipstein, Wm. B. Ittner, Theo. C. Link, G. F. A. Brueggeman, James P. Jamiseon, of the St. Louis Chapter.

Report of the Special Committee on Emergency Construction for the Navy Department

AN INTERESTING EXAMPLE OF THE COST OF ARCHITECT'S SERVICES ON GOVERNMENT WORK

JOHN LAWRENCE MAURAN, Esq.,
President, American Institute of Architects.

Dear Sir: In the early part of last summer you appointed a Committee, consisting of Mr. Bannister, Mr. Peck, and myself as Chairman, to do such work of hospital planning as the Navy Department might ask for.

In the last days of July the Bureau of Yards and Docks notified me of their wish that my Committee should undertake the preparation of plans and specifications for an emergency hospital for about 250 beds, and for a power-house, both in the Medical Reservation at Brooklyn, New York. My Committee accordingly promptly made the necessary arrangements to undertake this work.

The terms agreed upon were that each member of the Committee should receive $1.50 an hour for time actually expended upon the work, though such amount should never exceed $12 per day; in addition to this, the salaries of draughtsmen, plus 100 per cent, to cover all overhead charges. Direct expenses allowed to be charged were necessary traveling expenses, telegrams, and long-distance telephone calls. It was further agreed that we might employ, in our discretion, such engineers as were needed, their compensation to be upon the same terms as our own. All payments were to be made upon bi-weekly requisitions.

The Bureau of Yards and Docks made a contract for services with me personally, preferring to have it with an individual, and I being Chairman of the Committee.

It was decided by the Committee that the work should be carried on in my office, and for its conduct the Committee agreed that it was in every way desirable to employ a thoroughly competent and responsible man to act as its representative in direct charge of the work. This was done because a Committee cannot act with the same prompt and constant efficiency as an individual; and hence the alternative would have been to have the work entirely in charge of some one member of the Committee, which would have made it too much a personal rather than an Institute matter. We accordingly employed Mr. F. H. Bosworth, Jr.

As engineers, we engaged the services of Werner Nygren for heating, ventilating, and plumbing; Elwyn E. Seelye for structural engineering; and J. F. Musselman for electrical engineering—all men of the first rank in their professions, and all having their offices in the same building where mine is.

The plans and specifications for the hospital were completed and delivered to the Bureau of Yards and Docks on October 10; those for the power-house were completed and delivered on November 14.

Bids have been taken on the hospital, and the contract is about to be let in the neighborhood of $300,000. I do not know what the cost of the power-house will be, but it is safe to say not less than $250,000. We therefore have two buildings, amounting in cost in the neighborhood of $550,000, which required for their proper designing a close study of engineering problems by experts. The whole amount of all requisitions up to November 15 was $17,377.11, and there remains but very little to be added to this, although the Bureau has requested us to continue rendering some services, such as the checking up of shop drawings. The work therefore is practically finished; a fair judgment can be arrived at as to the cost to the Bureau of the professional services rendered and as to the quality of those services. Upon the latter point I refer you to the letter received by me from the Chief of the Bureau of Yards and Docks concerning the hospital, copy of which you have.

As to the cost of services, it is interesting to compare the amount of the requisitions with the fee that would properly have been charged for similar services in private practice at the rate of 6 per cent on the cost of building, plus the customary disbursements for blue prints, a very large sum in this case, and further plus allowances for the very extensive and necessary special engineering work. The whole cost of services in this case runs somewhere in the neighborhood of 3¼ per cent of building cost. At the regular private rates such fees would probably be around $50,000, because the special engineering is a heavy item. But leaving that element aside, if we compare these costs with the figures worked out a few years ago, showing the cost of doing work in the office of the Supervising Architect of the Treasury Department under the conditions of a steady organization, dealing constantly with established requirements and not with a violent emergency, I think we shall surely find the advantage to be well upon the side of employing the private practitioner, even when he is allowed, as he certainly should be, to earn a substantial remuneration for his services.

Without going into burdensome detail, I wish to review the history of this work, particularly holding in view its bearing upon the important question of employment by the Government of technical services, in a civilian capacity, for war work.

The Medical Reservation at Brooklyn covers a large

area, upon which stand a big hospital building erected about 1825–30; an antiquated heating plant; a medical supply depot about to be abandoned, as a new one is being constructed elsewhere; and various other structures. Besides the hospital we have planned, at least one other is contemplated at some time when funds are available; the medical supply depot will at some time be converted into wards; and the old hospital requires extensive remodeling to modernize it. The power-house therefore is designed not merely to take care of the new hospital but of all existing buildings and all such future buildings as may reasonably be expected.

There have been in the working out of these two structures a great many intricate and difficult problems to be solved of such a character that, unless the work had proceeded in a spirit of genuine coöperation, the opportunities both for errors and for quite serious misunderstandings would have been abundant. It is therefore with a very lively appreciation that I record the fact that from the very inception of the work I have met with nothing but courtesy, open-mindedness, and a helpful attitude on the part of those in the Bureau, as well as the medical staff at the Reservation, and such officers at the Navy Yard as we have had to deal with.

The Bureau of Yards and Docks is evidently overburdened, as all other branches of the Government are today. In these circumstances it most naturally follows that preliminary plans sometimes cannot receive the careful consideration necessary to make it certain that they are all they should be; and in the development of such plans, when committeed to the hands of a private architect, many questions must arise for determination. This happened in the present case. The Bureau has an able designer in Mr. Southworth, and from him we received the preliminary layout of the hospital and a general description of what was required for the power-house, as well as a designation of its approximate site. Had Mr. Southworth and the Bureau officials been disposed to insist in any narrow way upon a close adherence to a plan evidently prepared under overwhelming pressure, and to resent offers of such modifications as we believed would be improvements, an unfortunate situation would have been created. But, on the contrary, we were given great freedom in the making of suggestions, and such as were made were received with open minds and a spirit of understanding. Consequently, it came to pass, upon a study of fixed topographical conditions, that an entirely new plan of the hospital was arrived at and approved by all parties concerned.

The same holds true of similar matters throughout. There have been such questions as the centralizing of the laundry system and the refrigerating system in the power-house, for the administrative advantage to be gained thereby for all time. There have been important questions of underground service connection, and there have been various difficulties connected with the cost of building which have made necessary the preparation of extensive alternative schemes for bidders, which, of course, added considerably to the cost of preparing the drawings and specifications.

The question of time has been urgent. It became obvious that, under ordinary governmental procedure, the power-house on somewhat difficult foundations might not be started until late in the season, and no difficulty was experienced in arranging with the Bureau to accept a specification for the boilers, which was delivered on August 24, and the boilers ordered; for the complete foundation plans, including concrete piling, delivered September 13; and to award very speedily a contract for building foundations before the superstructure of the power-house was advanced beyond a sketch state.

I think I have now sufficiently described this work. In conclusion I wish to point out what is, to me, its lesson. To settle without delay, and wisely, all of the questions—some of which I have briefly indicated—the best means is, and in this case has been, by informal friendly conferences. As a private individual, not under military orders, acting as an expert adviser, I have been entirely free to bring these about. I have been equally free to engage in this work whatever engineers of reputation seemed to me most available and best qualified to render the highly skilled service required and best fitted to work together and with myself. I have been free to use my own organization, to which I am accustomed, and which is accustomed to me, and to pick draughtsmen with reference only to their known skill and industry—to select them moreover according to their individual special abilities. Had I been an officer under orders, with such persons assigned to me as might happen to be available, the work could not have been done, in all probability, as quickly, as well, or as cheaply.

It is a highly advantageous thing, from every point of view, for the Government to avail itself in this way of civilian service; and the formulation by the Government of a consistent policy for such employment is, in my judgment, an absolute essential, if the technical qualifications of this country are to be most efficiently mobilized for the conduct of the war.

I have written a good deal in the first person, but this implies no assumption of credit to myself, or any lack on the part of my fellow-committeemen. They have stood ready at all times to do whatever they could and have manifested a most helpful and also a generous spirit in making it easy for me to assume the burden which was inevitable, since the work was done in my office.

It is not proper to omit from this report all reference to the work of the Quantity Survey Company, who have worked with us from the early stages of development of the drawings. It is too soon to give a final opinion upon the value of their services, because that can be determined only when building is completed; but it certainly can be said now that those services have been given very promptly and efficiently; that they have been of much help as a continuing check upon the completeness and accuracy of both drawings and specifications; and that there is reason to believe that the Survey has been of distinct advantage to bidders.

In closing I should like to call particular attention to what Mr. Bosworth had done. He has shown the utmost devotion, unflagging industry, and the highest degree of competence.

Yours very truly,

C. Grant La Farge,

Chairman, New York Committee, A. I. A., War Service Construction Work

The Architect and the Decorator

THE REPORT OF THE SPECIAL COMMITTEE OF THE NEW YORK CHAPTER ON THE RELATION OF THE ARCHITECT AND THE DIRECTOR AND METHODS OF CHARGES FOR DECORATING SERVICES

To the New York Chapter:

Your Special Committee on the Allied Arts and Trades begs to submit at this time a report of progress. We have had two meetings, in which we particularly took under consideration the relation of the architect to the design, purchase, and installation of decoration and furnishings. The members of this Committee also attended the meeting of the Architectural League recently, to which decorators had been invited, and on which occasion, by means of a series of questions placed before the meeting, there were brought forth the points of view of decorators who are designers, decorators who are salesmen, and decorators who are brokers or purchasing agents.

Mention was made of decorators who secure business without respect to the rights of the architect of the building. The charge was made that some architects accept discounts as contractors and depart from the professional relation to their clients when decorating their houses. A problem which seemed most interesting to decorators, and most troublesome, was the question of discounts. It appeared that decorators who have to charge a profit to include large overhead expenses disapprove of architects securing the same discounts for their clients and regard such a procedure as unfair competition from a commercial point of view. It was claimed that owners, on learning wholesale prices, thereby acquire a false scale of values which is demoralizing in its effect on legitimate business. There was revealed a regrettable lack of perception of what constitutes the professional relation of an architect to his client.

On the other hand, there was made evident the fact that a considerable number of the higher class decorators recognize the proper function of the architect and wish to coöperate with him and work under his direction (rather than supersede him) in decorating and furnishing a building in harmony with the design of that building. Definite announcement was made that the decorators are now undertaking to organize themselves into a body which shall observe a code of ethics in consonance with that of the American Institute of Architects.

Your Committee believes that the chief concern of our profession, in this as well as other problems, is that the practice of our members shall be along right lines. If we have a clear conception of a right line of action and act as a unit on our conviction, we shall soon find that we have won the respect and coöperation of our clients and also all fellow workers in the allied arts and crafts.

In order to afford an opportunity for discussion, your Committee offers the following resolutions:

WHEREAS, The canons of ethics of the American Institute of Architects declare that it is unprofessional for an architect to engage directly or indirectly in any of the building trades, and

WHEREAS, It is the sense of this meeting that the architect's interest and right in his design demand that he shall have a controlling influence in its execution, including its decoration and embellishment, when they would affect the character of the artistic result, be it

Resolved, That it is the sense of this meeting that the Institute canon above quoted applies to decoration and furnishings as well as to any other portions or accessories of buildings, and be it therefore

Resolved, That architects should be careful to maintain a strictly professional relation to their clients and refuse to accept for themselves commissions, discounts, or profits in any form, save the fees paid knowingly and directly by the clients.

Committee: EGERTON SWARTWOUT
WILLIAM ADAMS DELANO
JULIAN CLARENCE LEVI
A. B. TROWBRIDGE
BURT L. FENNER
D. EVERETT WAID, *Chairman*

Book Reviews

Chinese Art Motives Interpreted.

By Winifred Reed Tredwell. G. P. Putnam's Sons, New York City. $1.75.

A delightfully written volume which takes the reader by pleasant paths that wander among the rich history of Chinese life, in which art becomes a medium of narration—a teller of stories—full of the symbolism of flowers and the mysticism of gods and their immaterial domains. If one comes to see a greater beauty in one's Chinese vase or in one's bit of embroidery, through Miss Tredwell's interpretations, one is also likely to gain a greater love and respect for that China which seems so remote from the western world as to be a part of another solar system. I cannot disagree with Miss Tredwell about anything she has said, nor point out any inaccuracies, nor question any facts or dates. I merely record an hour of the purest pleasure in reading her interpretations.—B.

Obituary

Francis G. Newlands

Elected as an Honorary Member of the Institute in 1907
Died at Washington, December 24, 1917

Senator Newlands marched in that thin file of men in Congress who have idealized Washington as the capital of the Nation. Moreover, he worked and fought for his ideals continuously, consistently, and intelligently. From the day in January, 1902, when Senator McMillan reported to the Senate the plan for Washington prepared by Daniel Burnham, Charles McKim, August Saint-Gaudens, and Frederick Law Olmsted, Senator Newlands was a defender of that plan throughout years of hesitation, uncertainty, and threatened overthrow. With Senators Root and Wetmore he helped to turn the tide in favor, not of the plan as a whole—for it is still too large for general comprehension—but in support of such portions as have staked it down and made realization reasonably secure in the future. In the losing fight against a power-house located so as to dominate Potomac Park, Senator Newlands fought almost alone against two Senators who were members of the subcommittee under which the Plan of 1901 was prepared. They won a Pyrrhic victory. The intelligence and the patriotism of the country was aroused by his seemingly fruitless struggle. Congress and the executive departments were made to understand that the people resented the attempt to mar the beauty and retard the development of their capital. The place which he filled for so many years is vacant, but the gratitude and honor he gained should be encouragement and incentive to his colleagues to carry on the good work.

Charles Mulford Robinson

Charles Mulford Robinson, of Rochester, N. Y., widely known in America as a city-planning expert, died suddenly in Albany on December 30, 1917. Mr. Robinson held the first professorship of civic design in this country, at the University of Illinois, and had made city plans and been consulted in making plans for a score or more of cities in this country, including Denver, Omaha, Colorado Springs, Los Angeles, Columbus, Detroit, Honolulu, etc. He was the first secretary of the American Civic Association. He was author of many books, among them "The Improvement of Towns and Cities," which has gone through eleven editions; "Modern Civic Art," "The Call of the City," "The Width and Arrangement of Streets," and "City Planning."

Latest Developments in Housing at Washington

Since the forms containing our editorial comment went to press, there have been changes in the situation which very considerably qualify our statements as to the progress of work in this connection. On the 21st inst., we are informed, Chairman Hurley of the Shipping Board issued an order suspending all construction work on houses in connection with ship-building plants, except that confined to bunk-houses and barracks. It is also stated that the Shipping Board has decided that all efforts to correct the house-shortage will be confined to the erection of structures of this character. We hesitate to believe this, and in view of the fact that all other governmental agencies dealing with the problem appear to have reached an *impasse* which prevents any action at present, we are willing to risk a prediction that the utter inadequacy of the plans so far proposed has finally impressed the administration with the importance of this house question, in which case, it is not unlikely that an important public announcement may have appeared in the press before this issue of the Journal is in the hands of its subscribers.

In view of the kaleidoscopic and chaotic conditions in Washington, we are perhaps foolish to record any such prediction. A long-deferred hope may have influenced our judgment. Six months spent in watching the slow and painful maturing, first, of an appreciation of the gravity of a situation which the Board of Directors of the Chamber of Commerce of the United States, over a month ago, recorded as the most urgent necessity with which the nation was confronted; and, second, the inadequate, inordinate, and ill-conceived methods evolved for dealing with the problem have in nowise contributed to our ability to do more than guess the cause for all the bungling and juggling that has gone on.

We have a considerable sympathy for the men who have labored long and unselfishly in a heroic effort to gain headway, but we cannot conceal our feeling that the greatest obstacle in their path was their lack of knowledge and their consequent inability to deal with the problem on a broad, constructive, and far-sighted plan. In such a crisis the nation should have had the counsel of those men whose equipment of knowledge and experience was the best in the country, and not risked dependence upon those who had to collect and digest, in a short period, what others have spent years in studying.—EDITOR.

A New War Map of the Western Front

S. S. Labouisse, 730 Gravier Street, New Orleans, La., a Fellow of the Institute, has drawn a map of the western front at a scale of 5 miles to the inch, on which may be found more than 5,000 cities, towns, and villages in an area of 25,000 square miles. There are also shown all the railroads, highways, rivers, canals, forests, forts, and many of the farms and hills mentioned in reports. A key map shows the line of advance. Copies may be obtained of Mr. Labouisse at the price of $2, postpaid.

Structural Service Department

D. KNICKERBACKER BOYD, *Associate Editor*

(In coöperation with the following Committees of the Institute)

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QUANTITY SYSTEM

SULLIVAN W. JONES, *Chairman*, Washington, D. C.

*(Each Chapter has a corresponding member who is chairman of the Chapter Subcommittee.)

Foreword, 1918

As nearly as possible the sequence followed during 1917 will be followed this year. Additions to subjects formerly treated will be made throughout to record the progress of the past year. Many new phases will be incorporated.

The twelve monthly issues will, at the end of 1918, with revisions and any needful additions, be bound and will constitute Volume 2 of the Structural Service Book, a companion to Volume 1, now on the press.

Beginning in the first Serial with a general survey of all factors in investigational work toward standardization, under 1A, the regular course of procedure in planning for and constructing a hypothetical building, with its appliances and accessories, will be divided into twelve subdivisions, approximating the monthly stages of a one-year program of construction.

Only a limited number of references in each industry can be given, and a part of the service of this Department will be to furnish any inquirers with additional sources of information, titles of other publications, names of authors and publishers, cost of volumes, and to provide any other information possible, for which purpose address The Journal of the American Institute of Architects, The Octagon, Washington, D. C.

INDEX TO SUBJECTS TREATED IN THIS ISSUE

(For index of materials previously treated, see Index on page 49 and General Index to the Structural Service Book, Vol. I, 1917.)

Research, Tests, Inspection Service, and Standardization 1A
Preliminary Procedure, Office and General Administration 1B
Contractual Relations, Specifications and Drawings 1C
Estimating Conditions, Quantities and Cost Data 1D
The Site, Excavation, Piling, Foundational Requirements 1E
Damp-proofing, Waterproofing and Under-Water Construction 1F
Structural Iron and Steel 1G

Research, Tests, Inspection Service and Standardization. 1A

Throughout the vast and varied literature of materials and products, and of appliances and systems pertaining to buildings and their accessories, there constantly recur the names of national, state, and municipal departments and bureaus, of testing laboratories, universities, and technical institutions, with tables and diagrams, results of tests and analyses and references to approvals, labels, lists of inspected materials and devices, regulations and other standards.

These relate not alone to the materials employed but to considerations which are more and more being given to the methods used and to means of safety in their use.

This is indicative of a widespread interest and service on the part of some of the people, involving activities which need to be better understood by all of the people, especially the building public, in order that their significance shall be more fully appreciated. It is also vitally necessary that a full understanding of the functioning of these activities and of the methods employed in securing the results shall prevail among architects, engineers, builders, and all constructors.

To aid in bringing about this better understanding and to assist in accomplishing the results striven for shall be the part and purpose of the Structural Service Department.

[NOTE.—The numerical, alphabetical designations which follow each title or precede any paragraph are for reference purposes only.]

Recognition of investigations and tests for the purposes of use intended and of those made by organizations or other agencies whose findings are known to be generally acceptable to all concerned should be a pre-requisite to their adoption as "standards."

Educational Research and General Instruction. 1A1

(*a*) Exceedingly important work is being done in many educational institutions of the country which maintain laboratories, conduct experiments, and make tests of building materials. (See 1A3.) These, while primarily in connection with the work of the students, add annually to the general public understanding of materials used in building construction, their qualities, action, protection and proper use.

Many of these institutions distribute bulletins, circulars, and reports contributing toward this end. Among these institutions may be mentioned the following: (In those marked † are located branches of the American Society of Mechanical Engineers where regular meetings are held.)

† 1. Agricultural and Mechanical College of Texas . . . . . College Station, Texas
† 2. Arkansas, University of* . . . . . Fayetteville, Ark.
† 3. Armour Institute of Technology* . . Chicago, Ill.
† 4. Bucknell College . . . . . Lewisburg, Pa.
† 5. California, University of. . . . . Berkeley, Calif.
† 6. Carnegie Institute of Technology . . Pittsburgh, Pa.
† 7. Case School of Applied Science . . . Cleveland, Ohio
† 8. Cincinnati, University of . . . . . Cincinnati, Ohio
† 9. Colorado State Agricultural College . Fort Collins, Colo.
†10. Colorado, University of* . . . . . Boulder, Colo.
†11. Columbia University . . . . . New York, N. Y.
†12. Cornell University* . . . . . Ithaca, N. Y.
13. Dartmouth College . . . . . Hanover, N. H.
†14. Georgia School of Technology . . . Atlanta, Ga.
†15. Illinois, University of . . . . . Urbana, Ill.
†16. Iowa, State University of . . . . . Iowa City, Iowa
†17. Kansas State Agricultural College . Manhattan, Kans.
†18. Kansas, University of . . . . . Lawrence, Kans.
†19. Kentucky, State University of . . . Lexington, Ky.
20. Lafayette College. . . . . Easton, Pa.
†21. Lehigh University . . . . . South Bethlehem, Pa.
†22. Leland Stanford, Jr., University . . Stanford University, Calif.
†23. Lewis Institute . . . . . Chicago, Ill.
†24. Louisiana State University* . . . . Baton Rouge, La.
†25. Maine, University of* . . . . . Orono, Maine
†26. Massachusetts Institute of Technology* . . . . . Boston, Mass.
27. McGill University . . . . . Montreal, Can.
†28. Michigan, University of . . . . . Ann Arbor, Mich.
†29. Minnesota, University of* . . . . . Minneapolis, Minn.
†30. Missouri, University of . . . . . Columbia, Mo.
†31. Nebraska, University of . . . . . Lincoln, Neb.
†32. New York University* . . . . . New York, N. Y.
33. North Dakota, Agricultural College of Fargo, N. D.
†34. Ohio State University* . . . . . Columbus, Ohio
35. Princeton College* . . . . . Princeton, N. J.
†36. Pennsylvania State College . . . . State College, Pa.
37. Pennsylvania, University of . . . . Philadelphia, Pa.
†38. Polytechnic Institute of Brooklyn . Brooklyn, N. Y.
†39. Purdue University* . . . . . Lafayette, Ind.
†40. Rensselaer Polytechnic Institute . . Troy, N. Y.
†41. Rose Polytechnic Institute. . . . . Terre Haute, Ind.
42. Rutgers College . . . . . New Brunswick, N. J.
†43. Stevens Institute of Technology* . . Hoboken, N. J.
†44. Syracuse University* . . . . . Syracuse, N. Y.
45. Texas, University of* . . . . . Austin, Texas
†46. Throop College of Technology* . . . Pasadena, Calif.
47. Tulane University . . . . . New Orleans, La.
†48. Virginia Polytechnic Institute . . . Blacksburg, Va.
†49. Washington State University. . . . Seattle, Wash.
†50. Washington University* . . . . . St. Louis, Mo.
†51. Wisconsin, University of* . . . . . Madison, Wis.
†52. Worcester Polytechnic Institute* . . Worcester, Mass.
†53. Yale University . . . . . New Haven, Conn.
54. Oklahoma A. & M. College* . . . . Stillwater, Okla.

(*b*) Other contributions to the wider understanding of building materials and appliances are the series of handbooks and other volumes comprising extensive technical libraries published, in connection with "correspondence courses," by:

(1) American School of Correspondence, Chicago, Ill.
(2) International Correspondence Schools, Scranton, Pa., and its subsidiary, the
(3) International Textbook Company, Scranton, Pa.

(*c*) The Smithsonian Institute, in Washington, the Franklin Institute in Philadelphia, the Cooper Union, in New York, the American Association for the Advancement of Science, the American Academy of Political and Social Science, and other distinguished bodies interested in science, invention, sanitation, and sociology maintain important technical libraries. Some of them conduct schools of mechanic arts or their equivalents, hold exhibitions, and give lecture courses, or have papers or addresses read which are published in the journals, proceedings, or otherwise. These also form an important contributing link in the development of the art and science of building and of its social and economic aspects.

Professional and Technical Societies. 1A2

In this field a vast body of individuals is constantly at work making investigations, developing methods of procedure, and determining best practices to be followed. The activities of these organizations and of their various committees will be described, together with their publications, in the Serial numbers under which these activities would naturally fall. A few, however, of these organizations concern themselves with so many phases of building materials and methods that their inclusion in this issue, embracing the subject in general, is obvious.

Among these is one of the four great engineering societies, and the oldest, namely:

American Society of Civil Engineers. 1A2a

Secretary: Charles Warren Hunt, 220 W. 57th Street, New York City.

Publications:

1. **"Proceedings,"** monthly (except June and July). Contain minutes of meetings and Society announcements.
   A valuable classified list of articles in the principal current engineering, professional, and technical periodicals, and a list of new books received in the Society Library, appear in each issue.
   Under the heading "Papers and Discussions" all papers, in advance of their presentation at a Society meeting, and all of the discussions to which they subsequently give rise, are published in the "Proceedings."
2. **Transactions,"** annually. Contain all the technical matter which has been issued serially in "Proceedings," collated so as to make a permanent record.
3. **"Year Book."** Contains Constitution of the Society, officers, committees and membership lists, and other general information.
   The above publications are distributed without charge to the entire membership.

The object of this Society is the advancement of engineering knowledge and practice and the maintenance of a high professional standard among its members.

The American Institute of Architects. 1A2b

Secretary: W. Stanley Parker, The Octagon, Washington, D. C.

Publications:

(Others referred to under 1B and 1C) and Industrial Section, p. xxxii.

1. Constitution and By-laws, in which are set forth requirements for membership.
2. Circular as to Size and Character of Printed Matter Intended for Architects' Files. The above are free on request.
3. Monograph on the Octagon. An illustrated history of this charming house. $12.50.
4. Journal of the American Institute of Architects. $5 per annum; $3.50 to members of the Institute; foreign, $5.
5. The Structural Service Book. $3.50.
6. The Annuary, containing a list of members and committees.
7. The Proceedings, being the transactions of the Annual Convention.

   6 and 7 are free to members only; to others, $5 each.
   For list of Chapters and officers, see the Journal.

Its objects are to organize and unite in fellowship the architects of the United States of America, to combine their efforts so as to promote the esthetic, scientific, and practical efficiency of the profession, and to make the profession of ever-increasing use to society.

The chief activities of the Institute concerning structural matters center in the work of certain committees, the titles and personnel of which appear at the beginning of this issue. This work, when it concerns any branch of construction, will be referred to thereunder.

American Railway Engineering Association. 1A2c

Secretary: E. H. Fritch, 910 Michigan Avenue, Chicago, Ill.

Publications:

(1) "Proceedings," annually, contain complete committee reports, full discussions and special articles.
(2) Bulletin, ten issues annually, committee reports and monographs.
(3) Manual of the A.R.E.A. The current edition contains a comprehensive revision of the action of previous conventions. Included in the contents are:

(*a*) Principles of practice.
(*b*) Suggestions and recommendations.
(*c*) Specifications adopted (Standards).
(*d*) Standard form of contract and bond.

Members receive all of the above. Others may purchase them from the Secretary or book-dealers at: (1) paper, $6; cloth, $6.50; half morocco, $7; (2) per annum $8; (3) paper, $4; cloth, $4.50; half morocco; $5.

The A.R.E.A. was organized in 1899 under the name of the American Railway Engineering and Maintenance of Way Association, which name was abbreviated in 1911 to the present title.

The object of the Association is the advancement of knowledge pertaining to the scientific and economic location, construction, operation and maintenance of railways. What an important relation much of this has to building construction will become evident from the references to the work of this Association which will be made under the various industries, as treated, in the Structural Service Department.

The recommendations and specifications above referred to, which are adopted through procedure outlined in Structural Service Book, Vol. I, under 1A9 and subsequently published in the Manual shall be considered in the direction of good practice, but shall not be binding on the members.

Society of Constructors of Federal Buildings. 1A2d

Secretary: Frederic A. Hills, Quarantine Station, Portland, Maine.

Publications:

1. Journal, devoted to professional papers and discussions, cost data, and contract news relative to United States Public Buildings. Architects, engineers and other constructors will find much of interest and value in the papers and discussions published.

Is a voluntary organization of the technical personnel of the Office of the Supervising Architect, Treasury Department, but has no official connection with the Department. Its members are employed in the design, construction, equipment and maintenance of United States Public Buildings.

It has a Committee on Manufacturers and Materials which it is intended shall act as a clearing-house to report upon new devices, methods, and materials incidental to building construction.

American Institute of Consulting Engineers, Inc. 1A2e

Secretary: F. A. Molitor, 35 Nassau Street, New York City.

Publications:

1. Constitution and By-laws and list of members and committees containing also:
   Code of Ethics, adopted by the A.I. of C.E., Inc.
   Schedule of Fees, adopted by the A.I. of C.E., Inc.

Its objects are to promote ethical standards and practical efficiency in all branches of engineering as a profession and to increase the usefulness of the profession to the public at large.

Other Organized Bodies 1A2f

Associations of Producers, Manufacturers, Contractors, Builders' Exchanges and others whose activities contribute toward improvement in structural materials and processes will be mentioned under various Serial numbers.

The first known attempt to list these and all interests allied structurally has been made in the Structural Service Book, Vol. I, in which is included the Internationals comprising the Building Trades Departments of the American Federation of Labor.

Many of its Local and State Councils issue publications and take part in developing structural specifications and date such as mentioned in the Structural Service Book, Vol. I, under 9K1, 11D6*f* and *l*, 12E6, 12J and others later to be referred to.

Investigative and Testing Facilities 1A3

Many of the institutions listed under 1A1*a* conduct this character of work only in connection with their instructional activities. Others will make tests on materials which involve investigation and research elements as distinguished from tests of a purely routine or commercial nature. In those from which we have heard, where, either through one of the departments or by arrangement with members of the instructive staff, experiments or tests will be conducted for those desiring them, the institution is indicated thus under 1A.1 a.

Some governmental facilities and others of national scope and semi-public nature, are:

Bureau of Standards, Department of Commerce, U. S. A. 1A3a

Functions of the Bureau pertaining to building construction in general described under 1A5*a*.

With respect to testing, the following is taken from Circular No. 45, "The Testing of Materials," which contains full information and a schedule of the fees charged, and may be had upon application to the Director of the Bureau:

"Tests of materials are made for the public where the Bureau is asked to act as referee or where an authoritative test is demanded by the nature of the case, or in other cases where the Bureau is primarily interested in the test in connection with investigation. The right is reserved to make such use of the results of these tests as is deemed desirable. The Bureau will coöperate with investigators, manufacturers, testing laboratories, and others, not only in executing tests, but also on request, in furnishing any information at its disposal concerning materials or methods of testing."

The Bureau does not compete with private testing laboratories, but endeavors to assist them by the development of standard specifications, methods of measurement, and other matters where uniformity is desirable.

Watertown Arsenal, War Department, U. S. A. 1A3b

Watertown, Mass. (Address correspondence to Commanding Officer.) "Testing Laboratory, Watertown Arsenal, Watertown, Mass."

Publications:

1. The results of all public tests are published in the Annual Report of the laboratory, entitled (*a*) "Tests of Metals," the first volume of which is dated 1881. When available, these volumes may be purchased at cost by applying to the "Superintendent of Documents, Government Printing Office, Washington, D. C."

All classes of constructive materials are tested, such as iron and steel, in the form of test specimens or full-sized members, cement in briquettes or concrete columns and cubes, brick, or stone.

Under the law any citizen of the United States may have tests made by defraying the cost, an estimate of which will be furnished. A sum equal to this estimate must be deposited before work for private parties can be begun.

An official report will be furnished covering each test. All data for private tests is considered confidential, and information concerning same will be furnished only to the party for whom the work is done or his order.

A list of all such tests, giving the name and address of the party for whom made, date of test, and kind of material is published in the Annual Report.

Bureau of Mines, Department of the Interior, U. S. A. 1A3c

Director: Van. H. Manning, 710 E Street, Washington, D. C.

The Bureau of Mines may make tests of fuels, explosives, and certain mining appliances, such as lamps, timbering, etc. When such work is performed other than for the Government of the United States or state governments, a reasonable fee to cover the necessary expenses is charged.

Office of Public Roads and Rural Engineering—Department of Agriculture, U. S. A. 1A3d

Director: Logan Waller Page, Washington, D. C.

A laboratory is maintained wherein it has been the policy of the office to test, free of charge, for any citizen of the United States, samples of rock, gravel, sand, clay, etc., provided they are submitted strictly in accordance with printed instructions which are furnished upon request. Such tests relate to the value of material for use in road-work and a report as to such value only is furnished.

Forest Products Laboratory, Madison, Wis. Forest Service, U. S. Department of Agriculture. 1A3e

Forester: Henry S. Graves, 928 F Street, Washington, D. C.

It is the policy of the Forest Service to undertake any investigative work pertaining to the use of forest products, provided the problem is of general interest, and it seeks at all times to secure the coöperation of the various associations affected, so far as funds and equipment are available.

Other Governmental Department Activities. 1A3f

Reference will not here be made to the researches and investigations which are constantly being conducted by various divisions of the Treasury, War, Navy, Interior, and other departments of the Government, the conclusions resulting from which form important factors in the national development of building construction. These will be referred to in connection with the industries and branches of construction affected.

American Society for Testing Materials. 1A3g

Its functions are to establish various kinds of standards, and these are referred to under 1A5*c*. It does not conduct tests other than those which are made by the Society for and through its various committees, results of which will be found in its publications.

Certain Government branches are prepared to coöperate with the work of the standing committees, announcements concerning which, prepared by or with the directing heads of the Government branches concerned, are printed in the A.S.T.M. Book of Standards.

Testing Laboratories and Inspection Services. 1A4

Underwriters' Laboratories. 1A4a

President: W. H. Merrill, 207 E. Ohio Street, Chicago, Ill.

It is the task of the Underwriters' Laboratories, incorporated in 1901 and maintained by the National Board of Fire Underwriters for service—not profit—to secure and make available to all who may be benefited the best obtainable opinion regarding the merits of materials, appliances, and systems in respect to the fire and accident hazards. It issues publications which will be listed in Serial No. 3.

When the product of a manufacturer is admitted to the Label Service, following suitable investigation of sample goods, inspection is established in his factory. Inspectors and engineers in the employ of the Laboratories follow the daily run of material through various processes of production and conduct such tests as have been specified, and to goods thus found to be of suitable quality Underwriters' Laboratories' labels are attached.

Factory Mutual Laboratories. 1A4b

Engineer: W. O. Teague, 31 Milk Street, Boston, Mass.

The Laboratory, established in 1890, is designed primarily for the use of mill-owners whose properties are insured in the Associated Factory Mutual Fire Insurance Companies. In general only such devices and subjects are investigated as will be of interest to Mutual members, and there is no charge for this service, either to the parties submitting the appliances or to the members.

It issues no publications, as these emanate from the Inspection Department, and will be later listed in Serial No. 3.

(*c*) Apart from the contributing factors already mentioned, due credit should be accorded to those individual producers, manufacturers, and organizations thereof which maintain laboratories and investigational facilities of their own and who thus, and through coöperation with governmental departments and others mentioned, endeavor to effect continual improvement in production and utilization of building materials and appliances.

(*d*) For the practical business assistance of architects, engineers, and others in conducting tests and analyses of cement and building materials generally, and in inspecting the manufacture and erection of steel and other structural members, there exist a number of testing laboratories and engineering concerns of national scope which are conducted as private business enterprises. Many include in their management or on their staff prominent members of the leading professional and technical societies.

Final Progress toward Standardization. 1A5

It has well been said by the Director of the U. S. Bureau of Standards: "A standard of quality for a given material necessarily takes into account the purpose thereof; too low a standard results in losses, poor efficiency, and even loss of life; too high a one may result precisely in the same thing: that is to say, the material must be suitable for the purpose intended. The Bureau's investigations are to enable the user of materials, first, to select intelligently the material best suited for the purpose; second, to specify it in terms which the producer cannot mistake; and third, to make the necessary tests to ascertain whether the material supplied is in accordance with the specifications.

"The time is coming when all materials bought or sold must be as represented. This is impossible except where proper standards of quality and methods of measurement have been developed.

"The Bureau's activities are not devoted principally to the interests of the user or consumer, for its work most deeply concerns manufacturers, who are fundamentally concerned, directly or indirectly, with the improvement of methods of production or quality of output, for it is upon quality, as well as upon price, that competition must finally depend.

"A part of the problem of making the results of the Bureau's work available and useful to the public, the Journal will be able to effect through its columns.

"It is hoped that the acquaintances formed with architects, manufacturers, dealers, and consumers, will result in mutual advantage to them and to the Bureau, and that they will feel more inclined to place their problems before the Bureau for solution. Thus the Bureau will be better able to understand their difficulties, and be of the fullest possible service to the people of this country."

Foreign Governments and Institutions. 1A5a

The importance of maintaining scientific institutions for the investigation and standardization of materials, including those entering into building construction, has been recognized by the leading countries of the world. The most notable organizations of this character which cooperate directly or indirectly in normal times, as does the American Society for Testing Materials, with the International Association for Testing Materials, will be found listed in the Structural Service Book, Vol. I, under 1A1*a*.

In the United States, as will be noted below, and throughout the Structural Service Department each year, the Bureau of Standards combines the functions of many of the foreign institutions and maintains coöperative relations with various governmental departments and professional, technical, commercial and other organizations throughout this country.

A list of foreign architectural societies is given in Kidder's Pocket Book, 1916, pp. 1698–1703.

Bureau of Standards, Department of Commerce, U. S. A. 1A5b

Authorized by Congress, March 3, 1901; organized July 7, 1901.
Director: Samuel W. Stratton, Bureau Laboratories, Washington.

Publications:

1. Annual Report of the Director. Limited number for free distribution upon request to the Bureau.
2. Scientific papers, (3) technologic papers, and (4) circulars: Published as investigations warrant; obtainable upon application to the Bureau or the Superintendent of Documents at Washington, at prices quoted or without charge if no price is given.
5. Miscellaneous Publications: Reports of weights and measures, conferences, metric charts, tables and equivalents, obtainable upon application to the Bureau.

Laboratories:

Main Laboratories: Washington, Pierce Mill Road, near Connecticut Avenue. Branch Laboratory: Pittsburgh, Pa., temporarily located in buildings of the War Department, Arsenal grounds.

The Bureau is authorized to deal with: Standards of measurement, of values of constants, of quality, of mechanical performance, and of practice.

In addition to general research investigations, it studies problems which arise in the preparation of specifications or the development of methods of testing required in the determination of the qualities of materials.

The work of testing and investigating the properties of structural materials was taken up and is carried on primarily for the needs of the Government in its structural work, but this information is just as necessary to the public in construction work, and every effort is made by the Bureau to make its findings in a form available to the public generally.

The work of the structural engineering and miscellaneous materials division includes the investigation, testing and preparation of specifications for these materials, such as the metals and their alloys, stone, cement, concrete, lime, the clay products, paints, oils, paper, textiles, rubber and other miscellaneous materials. Questions pertaining to the manufacture, specifications, testing, and use of the metals and their alloys have become so important that a metallurgical division has been formed of the experts engaged in these problems.

Many inquiries are received annually from architects, engineers, contractors, and builders as to methods of waterproofing concrete, methods of construction to be employed in sea water, physical properties of concretes of various mixtures, the cause of staining of plaster walls and ceilings, methods of preventing the dusting of cement floors, suggestions for building code requirements, the physical properties of marbles, specifications for stucco, fire-resisting properties of structural materials, the corrosion of metal lath, and reinforcement of gypsum plasters.

From the general public requests are received for information on methods of mixing concrete, laying of concrete sidewalks, waterproofing basements, suitability of various materials for use in concrete, durability of composition magnesite floors, physical properties of stones, effect of frost action on concrete, suitability of concrete for oil and acid storage tanks, damp-proofing brick and tile walls, dusting of concrete floors.

The engineering data resulting from investigations which the Bureau is conducting in reference to fireproofing of building columns and partitions should serve as the foundation upon which building codes must be constructed. Some progress has been made recently in compiling the municipal building codes, both with a view to furnishing information to state and city building bureaus and to others interested, and to permit a comparative study of existing codes, to assist in planning a systematic program of investigations of the many important questions about which there are still great differences of opinion.

American Society for Testing Materials. 1A5c

Secretary: Edgar Marburg, University of Pennsylvania, Philadelphia.

Publications:

1. "Proceedings," published annually in two parts, containing:
   (*a*) Reports of technical committees and tentative Standards published for one or two years for criticism before final action toward their adoption (of which there are now 61).
   (*b*) Technical papers and discussions.
2. Book of A.S.T.M. Standards, about 800 pages, published biennially in the even years and containing the Standards adopted by the Society in their latest revised form (there are now 107).
3. Standards, also published individually at 25 cents each; to members, 15 cents.

4. A pamphlet annually, containing list of members, personnel of committees, and general information concerning the Society and the International Association.
5. Circulars of information to members are also issued at irregular intervals, averaging about one a month.

Each member receives the above publications, except (3) by virtue of his membership. Current issues obtainable by non-members at (1A), paper, $5; cloth, $5.50; (1B), same; (2), cloth only, $7.50; (4), paper, $1.

The American Society for Testing Materials was organized 1898 as American Section of the International Association for Testing Materials. Incorporated 1902 as American Society for Testing Materials.

Its purpose is the promotion of knowledge of the materials of engineering, and the standardization of specifications and methods of testing.

Membership may be held by individuals, firms, corporations, technical or scientific societies, companies, teaching faculties, and libraries. For information address the Secretary.

The work of the Society is done largely through its technical committees, which present reports and recommendations at the annual meeting, usually in June. There are now 38 technical committees with a total membership of 1,022.

On committees dealing with subjects having a commercial bearing, either an equal numeric balance is maintained between the representatives of consuming and producing interests, or the former are allowed to predominate with the acquiescence of the latter.

For detailed description of methods of procedure regarding proposed new Standards or proposed amendments to existing Standards, see the quotation from "Regulations Governing Technical Committees," given in the Structural Service Book, Vol. 1, under 1A4.

The various standards affecting materials or methods of building construction will be separately referred to throughout the Structural Service Department under the especial material or industry affected. A pamphlet giving a complete list of all Standards may be had upon application to the Secretary of the A.S.T.M.

Standards of the A. S. T. M. 1A5d

The **Committee on Materials and Methods** of the American Institute of Architects called attention last year to the **increasing use of the Standards of the A.S.T.M.** in federal, state, and municipal circles, and specifically to the use of many of these Standards by the Purchasing Department of the Panama Canal, and in connection with the Boiler Code prepared by a committee of the American Society of Mechanical Engineers.

At this time the Committee further calls attention to the fact that the **A.S.T.M. Standards** are now **in course of translation** into foreign languages under the auspices of the United States Department of Commerce, with a view to placing them in the United States Consular Offices in the foreign countries, and making them conveniently available to American interests in relation to export trade.

The United States Steel Corporation is also **making a translation** of certain specifications, and it was the desire of the Department of Commerce to have the benefit of mutual comparison, to avoid conflict in phraseology. The progress of this work has been somewhat delayed, however, owing to the vast amount of official work which is now crowding the Government offices.

The Institute's **Committee on Basic Building Code** last year called attention to the fact that the current Building Code of the city of New York prescribed in several instances that certain **Standard Specifications of the A.S.T.M.** should be conformed to.

Other Standards and Building Codes. 1A5e

1. Attention could similarly be called to official and other recognition of the **Regulations of the National Board of Fire Underwriters** and **Standards of the National Fire Protection Association** which have a most important effect on certain phases of building construction. These will be referred to in later Serial numbers, as will also the **Building Code** suggested by the **N.B.F.U.**, described in Structural Service Book, Vol. I, under 3A4, 4B2*b*, and 4B3.

2. Building Codes. The **mandatory provisions** of all codes, state or municipal, govern construction in each locality. It is the duty of all architects, engineers, contractors and owners to **co-operate with officials** and with other agencies before mentioned, not only in the fulfilment of all requirements, but in raising the general standard of building construction in every way possible and to take part, as has been done in many localities, in movements **to improve existing codes** or portions thereof. On this point the Institute, in its Document 107 (1B5*a*) says:

"An architect should be mindful of the public welfare and should participate in those movements for public betterment in which his special training and experience quality him to act. He should not, even under his client's instructions, engage in or encourage any practices contrary to law or hostile to the public interest; for as he is not obliged to accept a given piece of work, he cannot, by urging that he has but followed his client's instructions, escape the condemnation attaching to his acts. An architect should support all public officials who have charge of building in the rightful performance of their legal duties. He should carefully comply with all building laws and regulations, and if any such appear to him unwise or unfair, he should endeavor to have them altered."

Preliminary Procedure, Office and General Administration. 1B

(See, also, some of the references under next two succeeding sections.)

1. The American Institute of Architects has for some time had in course of preparation, **"An Architect's Handbook of Professional Practice and Business Administration"** for use in connection with the Institute documents.

Were this book now completed, reference to it here as the centralized source of information would practically constitute this section so far as architects are concerned. The book is intended as an aid to proper practice and efficient business administration. To the student who intends making architecture his profession and to the young practitioner, it will be of service in a field to which experience has heretofore been the only guide, while to the architect in full practice, it may offer valuable suggestions. To the owner, the Handbook should be of value as enabling him, the more intelligently, to coöperate with his architect.

The book covers such subjects as the various forms of service performed by an architect, methods of choosing an architect, agreement between owner and architect, the architect's legal status, the owner's duties, the organization of an architect's office, drafting-room practice, competitive bidding, methods of contracting for the execution of work, the use of the Institute's contract documents, notes upon proposals, legal details of agreements, the administrative conduct of the work, with examples of its certificates, vouchers, schedules, etc., notes upon supervision and superintendence, notes upon cost accounting and book-keeping for architects and upon the legal relations of architect, owner, and contractor.

This Handbook, which has already passed through several preliminary drafts, will shortly appear in the pages of the Journal for the purpose of receiving the constructive criticism of the whole profession, after obtaining the benefits of which it will appear, perhaps within the year 1918, in book form.

(*a*) It is not in our province to treat of the qualifications for **"admission to practice"** of architects nor of the legal requirements of various states for the registration of architects, but it seems desirable, on account of their relation to good practice and administration, to call attention to the following "Rules":

A 20-page booklet is issued (June, 1917) on **"Registration of Architects** in the State of New York—**The law in relation to the practice of architecture** and the rules of the State Board of Examiners and Registration of Architects approved by the Regents of the University of the State of New York." The synopsis of subjects is illuminating as to what a qualified architect should know of history, composition, architectural engineering and practice, the latter including building laws, contracts, specifications and drawings. Copies of this, as Bulletin No. 35 of the University of the State of New York, are obtainable without charge from Director of Examinations and Inspections Division, Albany, N. Y.

2. With respect to **engineering practice and procedure** and that of other professions concerned with structural matters, see the respective publications of the societies and other organizations to be listed throughout this department and included in Vol. I, 1917, of the Structural Service Book.
3. See, also, **"Business Law for Engineers,"** C. F. Allen, C.E., etc., 1917. Part I: Elements of Law for Engineers; Part II: Contract-letting.
4. See **"A Dictionary of Architecture and Building**, Biographical, Historical and Descriptive," Russell Sturgis, F.A.I.A., and many architects, painters, engineers, and other expert writers, American and foreign.
5. The **currently obtainable documents** of the American Institute of Architects dealing with the more important phases of professional practice consist of:

(*a*) A **Circular of Advice** relative to the **Principles of Professional Practice.** This is the Institute code of ethics and, while not going into the full details of all the ethical questions which come before the architect, nevertheless acts as a safe guide to conduct in general.

(*b*) **Professional Practice of Architects and Schedule of Proper Minimum Charges.** This document has been in existence for fifty years or more. It has undergone many revisions, the latest of which occurred in 1917. It indicates a basis upon which competent and complete professional services can be performed, and states the essentials of the service thus to be rendered. The fees in this case are based upon percentages of the cost.

(*c*) **A Form of Agreement between Owner and Architect** on the **Fee Plus Cost System.** This document, with its accompanying circular descriptive of the use of the system, bears upon a method of remunerating the architect essentially different from that on the percentage basis, a method rapidly coming into greater use and on the whole more equitable as between the parties than the other system (covered by *b*).

(*d*) **A Standard Form of Agreement between Owner and Architect** when a **Percentage of the Cost** of the Work Forms the Basis of Payment. This document gives to the owner and architect a clear understanding of their relations and obligations and is of the utmost importance in practice. It states much more fully and clearly than does the "Schedule of Charges" (*b*), the many unforeseen situations that may arise during the designing and erection of a building, situations that neither a verbal agreement nor a mere exchange of letters can cover.

(*e*) **Architectural Competitions,** a Circular of **Advice and Information.** This circular, with its accompanying **standard form** of competition **program,** deals with the whole subject of competitions and is a safe and necessary guide to the technical details of that much-abused subject.

6. The University of Illinois Engineering Experiment Station has issued the following:
   (*a*) Bulletin 13: "An Extension of the Dewey Decimal System of **Classification Applied to Architecture and Building,**" N. Clifford Ricker. 1907.
   (*b*) Bulletin 9: "An Extension of the Dewey Decimal System of **Classification Applied to the Engineering Industries,**" L. P. Breckenridge and G. A. Goodenough. 1912.
7. "The Law of **Operations Preliminary to Construction** in Engineering and Architecture," John Cassan Wait. Rights in **real property, boundaries, easements, and franchises** for engineers, architects, contractors, builders, public officers, and attorneys-at-law. 638 pp.
8. For "**Dimensions and Data** Useful in the Preparation of Architects' **Drawings and Specifications,**" see information under this heading in "Kidders' Architects' and Builders' Pocket Book," 1916, pp. 1557–1575.
9. For "Miscellaneous and Useful **Information** Concerning **Building Engineering, Trades and Materials,**" see tables, formulæ, **Symbols, Details of Construction,** etc., in "Handbook for Architects and Builders," Illinois Society of Architects, Vol. XX, 1917, pp. 375–400.
10. For "**General Instructions** issued **to draftsmen** by the Chief Mechanical and Electrical Engineer, Office Supervising Architect, Treasury Department," see the section in "Mechanical Equipment of Federal Buildings," referred to in the Structural Service Book under 6L1*n*.
11. See "**Consulting an Architect,**" What an Architect is and What He is Not—Costs and These Times, H. F. Sedgwick, *House and Garden*, November, 1917. Illus.
12. Consult, "**Architect, Owner and Builder before the Law,**" T. M. Clark.
13. Read "**The Architect as Arbitrator,**" W. L. Bowman, *The Brickbuilder*, Vol. for 1913.
14. Read "**Legal Hints to Architects,**" 1911, and "Architectural Jurisprudence," 1913, both by W. L. Bowman, C.E., L.L.B., in *The Brickbuilder*.
15. For the way in which the **offices** of several well-known **architects** are **planned and arranged** see series of articles by D. Everett Waid, Architect, in *The Brickbuilder*, volumes for 1911–13.
16. For suggestions as to **office management and systems** see series of articles in same periodical by Grosvenor Atterbury, Architect.
17. "**Engineering Office Systems and Methods,**" John P. Davies. 554 pp.; illus.
18. For a discussion of the best methods of **filing correspondence, catalogues** and **drawings,** see "**Architectural Filing,**" being Chapters 27 and 28 of "**Indexing and Filing**" by E. R. Hudders. 1915.
19. "**The National Association of Purchasing Agents**" advocates and is working for, a **standard size of catalog.** It recommends the adoption of letterhead size, **8½ x 11,** for all catalogs or other advertising literature designed for **filing purposes.** This action is in consonance with that of the American Institute of Architects which adopted this size as **Standard** and issues a "Circular as to **Size and Character** of **Printed Matter** intended for Architects' Files" (1A2*b*2).
20. "**Building Superintendence**—A Manual for Young Architects, Students and Others Interested in Building Operations," T. M. Clark, F.A.I.A.
21. Many are those who in practice today recall the first insight structurally which they received through "Clark's Superintendence." There now exists a large number of Handbooks, Pocket Books, and other practical general guides which will be found mentioned with frequency throughout the S.S.D., several of them, including Kidder and Trautwine in this Serial Number. Trautwine, Jr., and 3d continue the work of the original author, and we are informed that the next edition of Kidder will be known as "Kidder-Nolan" in recognition of Prof. Nolan's long-continued services as Editor.
22. See "A Handbook for Superintendents of Construction, Architects, Builders and Building Inspectors," H. G. Richey.
23. Also "The Building Foreman's Pocket Book and Ready Reference," H. G. Richey. 1,118 pp.; illus.
24. "**The Building Trades Handbook.**" A convenient reference book on building construction, mathematics, and estimating, by the International Correspondence Schools.
25. "**Technology and Industrial Efficiency,**" edited by a committee appointed by the Massachusetts Institute of Technology. 486 pp.; fully illus.
26. "**Construction and Management,**" Wm. O. Lichtner and Sanford E. Thompson, *Journal*, Association of Engineering Societies, 1915, p. 109.
27. "**Primer of Scientific Management,**" Frank B. Gilbreth, with an introduction by Louis D. Brandeis. 116 pp.
28. "**Principles of Industrial Organization,**" Dexter S. Kimball. 300 pp.; illus.
29. "**Popular Education in Architecture** and Landscaping." A Summary of the **Work of Federal and State Agencies,** C. F. Pilat, *Architectural Record*, June, 1917, p. 542.
30. **Architects and interested citizens** should have in their possession a copy of the "**Congressional Directory,**" which sets forth all functions of the **National Government** and gives the titles of **Departments, Bureaus** and other subdivisions with the names and addresses of all officials as well as the names, addresses and bibliographies of all **Representatives in Congress.**
31. The Curtis Publishing Co. has issued:
   (*a*) "What You **Should Know When Building a Little House,**" Charles E. White, Jr. 40 pp. (4 pp. of diagrammatic illustrations).
   (*b*) "**How to Finance the Building of a Little Home,**" C. M. Keys. 19 pp.

Contractual Relations, Specifications, and Drawings. 1C

(See, also, some of the references under the preceding and the next succeeding Section.)

An agreement, drawings and specifications are the necessary parts of a building contract. Many conditions of a general character may at will be placed either in the agreement or in the specifications. It is, however, wise to assemble them in a single document, and, since they have as much bearing on the drawings as on the specifications, and even more on the business relations of the contracting parties, they are properly called by the American Institute of Architects the "**General Conditions of the Contract.**" As the agreement, general conditions, drawings and specifications are the constituent elements of the contract and are acknowledged as such in the agreement, they are correctly termed the **Contract Documents.** Statements made in any one of them are just as binding as if made in the agreement.

1. In addition to the Documents of the American Institute of Architects referred to in the preceding Section, which apply for the most part to the **relations between architect and owner,** the Institute issues the below-mentioned documents which apply, for the most part, to the **relations between owner and contractor.**
   (*a*) **Form of Agreement and General Conditions of the Contract.**
   (*b*) **Bond of Suretyship.**
   (*c*) **Form of Subcontract.**
   (*d*) **Letter of Acceptance of Subcontractor's Proposal.**

The documents may be used as complete sets or separately and are obtainable from the Executive Secretary, A.I.A., The Octagon, Washington, D. C., or from the dealers listed on page xxvii of the Industrial Section.

The **Third Edition** of these "**Standard Documents** of the Institute" has just received official final approval and been ordered issued. This edition represents a concensus of opinion of many architects, builders, and contractors who have coöperated as individuals and as representatives of many local and national organizations to bring about desirable revisions of earlier editions.

The present third edition defines the equitable conditions that should exist in a building contract, and, in addition to the **approval of the American Institute of Architects** which issues the documents, they have received **the approval of** several national organizations, as will be noted on the cover, in addition to the following whose approval was given to the second edition.

National Association of Builders' Exchanges, the National

Association of Master Plumbers, the National Association of Master Steam and Hot Water Fitters, the National Association of Sheet Metal Contractors of the United States, the National Electrical Contractors' Association of the United States, and the National Association of Marble Dealers.

These forms, although intended for use in actual practice, should also be regarded as a **code of reference** representing the judgment of the Institute as to what constitutes good practice. They are equally applicable to a **single** or **general** contract, or to an operation conducted under **separate contracts.**

The general use of these Standard Documents by architects, builders and owners should not only simplify matters of procedure but tend to a reduction in the ultimate cost of properly executed work.

2. At a meeting of the representatives of eleven associations of building contractors of the city of Milwaukee, November 28, 1917, it was:
   (*a*) **"Resolved,** that the **Standard Documents of the American Institute of Architects, third edition,** and all revisions of the same or additions thereto, as adopted and approved jointly by the Institute and the National Association of Builders' Exchanges of the United States, **are hereby approved:** and that the associations here represented shall be and the same are hereby instructed to request the exclusive use of the said documents in connection with all contract work estimated upon or undertaken by them from and after January 1, 1918. And it is hereby further
   "*Resolved,* that the foregoing resolution be mailed by the Secretary of this joint meeting to each and every architect in the city of Milwaukee, the Board of Public Works, the building department of the School Board, and to other bodies, individuals, firms, or organizations in the city of Milwaukee and the state of Wisconsin as may be deemed expedient for the purpose of advising them of the above resolution and requesting their **co-operation in** putting into effect the **universal use** of these documents."
   (From *American Contractor,* Dec. 8, 1917, in which is a list of the names of the eleven endorsing organizations).
3. The American Railway Engineering Association has adopted and publishes in its "Manual" (1A2c3.) **"Uniform General Contract Forms,"** consisting of: **Construction Contract Form,** 2 pp.; **Form of Proposal,** 1 p.; **Construction Contract,** 10 pp.; **Bond,** 1 p.
4. Consult "Handbook of the **Law on Contracts,**" Wm. L. Clark, Jr.
5. See "Part II, **Contract letting**" of "Business Law for Engineers," C. F. Allen. 1917.
6. **"The Law of Architecture and Building,"** Clinton H. Blake, with a special introduction by Aymar Embury II; 352 pp.
7. **"Engineering and Architectural Jurisprudence,"** John Cassan Wait. A presentation of the Law of Construction, for engineers, architects, contractors, builders, public officers, and attorneys-at-law; 905 pp.
8. Read, "Do Engineers Need **Standard Contract Forms** Backed by **National Societies,"** *Engineering Record,* May 27, 1916.
9. **"Equitable Specifications and Contracts,"** Hillis F. Hackedorn, "Transactions," American Society of Mechanical Engineers, May, 1916.
10. **"Contracts, Specifications and Engineering Relations,"** Daniel W. Mead. Discusses relations of the engineer and of the architect in practical life, legal and contractural relations, and presents the analytical system for preparing specifications which Professor Mead has used for many years.
11. **"Engineering Contracts and Specifications,"** Prof. J. B. Johnson. 563 pp.
12. **"Contracts in Engineering,"** James I. Tucker. 307 pp.
13. **"Law and Business of Engineering and Contracting,"** Chas. Evan Fowler. 170 pp.
14. "Wright on **Building Arbitrations**—A Manual for Architects, Students, Contractors and Construction Engineers," G. Alexander Wright. June, 1913. 48 pp.
15. "Cyclopedia of Architecture, Carpentry and Building," American School of Correspondence. Vol. 1 contains sections on **"Contracts and Specifications"** and **"Building Law."**
16. **"The Law of Contracts,"** John Cassan Wait. A textbook for technical schools of engineering and architecture. 331 pp.
17. See **"Specification Reminder,"** prepared by William H. Sayward.
18. Read **"The Definite Specification** Viewed from Different Angles," *The American Architect,* December, 1914, p. 358.
19. Also, "Planning the **Specification,"** F. N. Reed, *Architecture,* April and May, 1916.
20. **"Specifications and Contracts,"** J. A. L. Waddell and J. C. Wait. A full presentation of typical contracts, and the "Law of Contracts," "general clauses" of contracts and specifications.
21. "The Elements of **Specification Writing,"** Richard Shelton Kirby. A textbook for students in civil engineering. 125 pp.
22. For useful **detailed drawings** of various phases of building construction, showing materials, and features of design, see
   (*a*) **"Building Details,"** Frank M. Snyder.
   (*b*) **"Details of Building Construction,"** Clarence A. Martin.
   (*c*) **"Construction Details,"** Francis W. Chandler.
23. For **Symbols used in marking drawings** see Index to Structural Service Book, Vol. 1, under Symbols, or referring to Electricity, Serial 6; Gas, Serial 7; Mechanical Equipment, Serial 9.
24. The practice of the U. S. Navy Department with respect to awarding of contracts on the cost plus percentage basis is set forth in Bulletin "Public Works of the Navy" for July, 1917.
25. **Accident Prevention, Safety to Life—Workmen's Compensation:**
   (*a*) Preparatory to and during building construction consideration should be given to all phases of these important related subjects. It had been the intention to describe them here, but the exigencies of the occasion make it necessary to postpone their consideration until a later issue. For list of those organizations mainly concerned, see Structural Service Book, Vol. 1, under 12K.
   (*b*) At a meeting of the Board of Control of the National Association of Builders' Exchanges held last November it was decided to make "Accident Prevention" an important feature of the program for the coming convention to be held at Pittsburgh in February and to recommend membership of the Association in the National Safety Council.
   (*c*) For information and illustrations pertaining to falling and slipping hazards, see "Make Walking Safe" on 2d. cover, American Abrasive Metals Co.

Estimating Conditions, Quantities and Cost Data. 1D

(See, also, some of the references under the two preceding sections.)

1. **The Quantity System:**
   (*a*) This system, as applied to estimating conditions, is receiving constantly increasing attention. The subject has been before the American Institute of Architects for a number of years, and, at the forty-seventh annual convention in New Orleans was reported upon by the **Committee on Quantity Surveying,** Sullivan W. Jones, Chairman.
   The present status of the situation is given by Mr. Jones, who presided at a **conference** held under the auspices of the A.I.A. under **"Signs of Change"** in this issue of the Structural Service Department.
   (*b*) Important contributions toward present developments in this country, the system having been in operation abroad for some time, have been made by G. Alexander Wright, including an address given before the General Contractors' Association of San Francisco, 1913, entitled: "A Plea for a **Better System of Estimating Cost** of Buildings in the United States."
   (*c*) In addition to its inclusion within some of the publications elsewhere referred to, this subject will be found treated in the *Journal* of the Society of Constructors of Federal Buildings for January, 1916, which contains a paper on **"An American Quantity System**—The Modern Aid to **Better Work** and **Better Contract Methods,"** by G. Alexander Wright.
   (*d*) A year ago the *Pictorial Review* published a series of twelve designs of small country houses by different architects, a feature of which, in each case, was that **quantities** for all items of construction were fully listed by the Quantity Survey Company, Inc.
   (*e*) For **services** in connection with this system see data, on back cover, of the **Quantity Survey** Company, Inc., which has long been identified with this movement.
2. See address on "The Nelson Form of **Choosing Bidders and Awarding Contracts"** delivered before the sixth annual convention of The National Association of Builders' Exchanges, February, 1917.
   (*a*) At a recent meeting of the Board of Control of this Association, H. W. Nelson, of Moline, Ill., made an address on this subject and referred to the **quantity system, relations** between **architects and contractors** and between **contractors and subcontractors.** It was decided that at the coming convention of the Association at Pittsburgh, in February, the discussion of "Nelson Forms" should be taken up.
   (*b*) The address of President John Lawrence Mauran of the American Institute of Architects before the February, 1917, convention of this Association should be read by those interested in closer **co-operation** between architects, builders, and other constructionists.

3. **"The Building Estimators' Reference Book,"** Frank R. Walker. 1917.
4. **"Handbook of Cost Data,"** Halbert P. Gillette. 1,900 pp.
5. **"The New Building Estimator,"** William Arthur.
6. **"Contractors' and Builders' Handbook,"** William Arthur.
7. "Modern **Estimators' and Contractors' Guide** for **Pricing** Builders' Work," F. T. Hodgson, Architect. 318 pp.; illus.
8. **"Estimating the Cost of Buildings,"** Arthur W. Joslin. 205 pp.; illus.
9. **"Estimating,"** Edward Nichols. 140 pp; illus.
10. **"The Estimator's Price Book** and Pocket Companion," I. P. Hicks. 172 pp.
11. For **"Revised Basis for Pricing Extra Work,"** as recommended by twelve organizations, see "Handbook for Architects and Builders," Illinois Society of Architects, 1917, p. 367.
12. Read **"Cost-keeping System for Building Contractors,"** D. B. Duncan, *Engineering-Contracting*, Sept. 27, 1916. Illus.
13. **"Cost-keeping and Scientific Management,"** H. A. Evans. 260 pp.; illus.
14. See **"Purchasing,"** H. B. Twyford. 252 pp.; illus.
15. See, also, **"Purchasing,"** C. S. Rindsfoos. 165 pp.

The Site: Excavation, Piling, Foundational Requirements. 1E

(Footings and foundations of stone, brick, wood piling, etc., will be treated in later serial numbers; cement and concrete in No. 2.)

Problems connected with soil conditions are encountered throughout the country. Pending actual investigation of the site, an acquaintance with the source of data concerning conditions likely to be found, the requirements of various cities as to floor-loads and bearings allowed, methods of overcoming obstacles similar in nature, the character of engineering or constructional assistance to be obtained, and other information tending to simplify investigation and facilitate subsequent treatment, should prove helpful.

The following, in addition to many locality bulletins and publications of universities and other institutions, are among those which might be mentioned:

1. The U. S. Geological Survey has published about four hundred **reports on** various phases of **water-supply** and **conditions** likely **to be met** with in excavating and similar work. Request should be made for information concerning a specific section of the country.
2. The U. S. Department of Agriculture has issued, among others, the following Farmers' Bulletins at 5 cents each:
   (*a*) No. 150: **"Clearing New Land,"** Franklin Williams. 1902.
   (*b*) No. 235: **"Cement Mortar and Concrete,"** P. L. Worseley. 1905.
3. The Bureau of Standards has issued, among others, Technologic Paper No. 26: **"Earth resistance** and its relation to the **electrolysis of underground structures,"** Burton McCollum and K. H. Logan. 1915. 48 pp.; illus. 15 cents.
4. The National Board of Fire Underwriters has issued: (See Structural Service Book, Vol. I, for complete list of its publications, under 3A4.)
   (*a*) "Building Code Recommended by the N.B.F.U.," 1915, which contains information on: **"Excavations, Foundations and Footings,"** pp. 25–32; **"Bearing Capacity of Soils,"** p. 28; **"Concrete Piles,"** pp. 32–34.
   (*b*) "Dwelling Houses, A Code of Suggestions for Construction and Fire Protection," 1916.
5. (*a*) In "Manual" of the American Railway Engineering Association (1A2*c*3) will be found specifications for **"Clearing, Grubbing, Grading, Surfacing** and **Subsurfacing, Drainage** and **Price and Measurement of Grading."**
   (*b*) See, also, "Reports of Committee on Masonry," in this "Manual," which treats of **various phases of underground and foundational work** and gives practice recommended with respect to many of them.
6. (*a*) A special committee exists in the American Society of Civil Engineers (1A2*a*) to "Codify Present Practice on the **Bearing Value of Soils for Foundations."** (See "Proceedings" of this Society for reports.)
   (*b*) The U. S. Bureau of Standards in latest available report (1916) stated that an investigation of the **resisting power of earths** is being conducted by the Bureau and a coöperative committee of the A.S.C.E. These investigations are briefly described in the Structural Service Book, Vol. 1, 1917 (1C4*b*). Experiments are being carried out to determine the laws of variation of frictional coefficients in relation to diameter and perimeter of **piles and foundations** as preliminary to further tests.
   (*c*) See, also, the "Transactions" of the A.S.C.E. for the following, among others: **"Lateral Earth-Pressures and Related Phenomena,"** E. P. Goodrich, Vol. LIII, p. 272; **"Pressure, Resistance and Stability of Earth,"** J. C. Meems, Vol. LXX, p. 352; **"Earth and Retaining Walls,"** G. H. Darwin, Vol. LXXI, p. 350.
7. See, **"An Apparatus for Determining Soil Pressures,"** A. T. Goldbeck and E. B. Smith, paper presented at the annual meeting of the A.S.T.M., June, 1916, and other papers and reports in the publications of this Society. Excavation and earth fills in connection with sewers and pipe trenching as developed by the A.S.T.M. will be treated in the issue devoted to plumbing.
8. The Pennsylvania State College Engineering Experiment Station (1A1*a*36), Bulletin, June, 1913, "Experiments on the **Distribution of Vertical Pressure in Earth,"** R. B. Fehr and C. R. Thomas.
9. See, **"Foundations of Bridges and Buildings,"** Jacoby and Davis, in which will also be found a very **complete bibliography** on **Concrete Piling** and other related subjects.
10. In a report from F. H. Quinby, Chairman of Brooklyn Chapter's Subcommittee on Materials and Methods, to Prof. Thomas Nolan, Chairman, attention was called to a foundation method based upon a **"bulb of pressure" under each pile.**
    This method, he stated, has been used most successfully during subway construction in **supporting buildings** up to twenty-two stories in height where the subway excavation extended **below the existing foundations** of the buildings.
    With this communication Mr. Quinby transmitted the next-named volume, containing description of this method.
11. **"Modern Underpinning"**—Development, Methods and Typical Examples, L. White, C. E. and E. A. Prentis, M. E. 1917. 94 pp. of diagrams and illustrations.
12. See *Journal* of Society of Constructors of Federal Buildings (1A2*d*) for:
    (*a*) **"Concrete Piling,"** B. A. Appleyard, May, 1915.
    (*b*) **"Pile Tests** at the Site of the Boston, Mass., Appraisers' Stores," Wm. N. Collier, September, 1915.
    (*c*) "A New **Concrete Pile Driven from the Point,"** J. M. Geary, August, 1917.
13. In the *Journal* of the Western Society of Engineers for June, 1914, will be found: **"Topography of the Red Rock under Chicago,"** Roderick Peattie, including diagrams and followed by discussions participated in by several architects.
14. **"Allowable Pressure on Deep Foundations,"** E. L. Corthell.
15. "A Practical Treatise on **Sub-Aqueous Foundations,"** C. E. Fowler.
16. **"Masonry Construction,"** Ira O. Baker.
17. **"Foundations,"** M. A. Howe; also, **"Masonry,"** M. A. Howe.
18. **"Building Construction and Superintendence,"** F. E. Kidder.
19. "American **Civil Engineers' Pocket Book,"** Mansfield Merriman.
20. "Handbook of **Cost Data for Contractors and Engineers,"** H. P. Gillette.
21. **"Concrete Pile Standards,"** Hunley Abbott, C. E.
22. Not alone for various matters connected with **foundations** but for **load** and other **requirements** of **building codes** in the principal cities of this country, see:
    (*a*) **"Kidder's Pocket Book,"** pp. 129–229, 151, 978–982, 1450.
    (*b*) **"Carnegie Pocket Companion,"** 1916. pp. 104, 188, 258–262, 318, 348–351.
    (*c*) **"Jones & Laughlin Manual,"** 1916, pp. 82–89, 218–222, 243, 284–290.
23. See, also, **"Handbook for Architects and Builders,"** Vol. XX, 1917, of the Illinois Society of Architects, including section on "Rules of measurement for excavation and concrete work," pp. 257, 259–261.

Damp-proofing, Waterproofing and Under-water Construction. 1F

To understand the difficulties which surround the solution of the problems connected with excluding water and other liquids from structures, both above and below ground, and with lessening the absorptive qualities of various containers or enclosing materials, it is only necessary to review the results, or to state the lack of them, in connection with investigations which have been taking place.

Governmental departments, educational institutions, various laboratories, including those maintained by some of the largest manufacturing interests in the country, professional and technical associations, all are working on the problem, and out of these activities there will evolve a clearer understanding of when, where, and how results may be accomplished.

Committee D-8 on Waterproofing 1F1

The various reports of this Committee of the A. S. T. M. form interesting contributions to progress along these lines.

(*a*) This Committee reported in 1915 that five subcommittees had been organized to gather **information on waterproofing materials**, as directly affecting the classes of construction assigned to each, namely: On **Railroads**, on **Subways** and **Tunnels**, on **Hydraulic Structures**, on **Buildings**, and **Technical**.

(*b*) A preliminary report, embodying **five proposed specifications**, was presented at a meeting of the Committee D-8 early in 1916. These included methods of testing for several materials used in **foundations** and other construction, tentatively described as applying to **"below-grade" conditions**. The program further contemplated the preparation of specifications for similar materials applied to **"above-grade" conditions**, as well as conveying media other than felt, the only one actually specified in the report.

(*c*) At the 1917 A.S.T.M. meeting, Committee D-8 submitted four "proposed **tentative specifications**, for **Asphalt**, for **Primer**, for **Coal-Tar Pitch**, and for **Creosote Oil**," all when used for **damp-proofing** and **waterproofing** under **uniformly moderate temperatures** (see A.S.T.M. "Proceedings" 1917, Part I [1A5c1], pp. 712–722 for full titles and specifications), and reference to conveying media such as saturated felts and woven fabrics.

(*d*) It is of interest to note that the A.S.T.M. at this 1917 meeting amended the above specifications by substituting for the word "waterproofing" the words "Use in Damp-proofing and Waterproofing."

The Subject in General. 1F2

The subject in general is treated in the following publications and articles, among others which will be found by referring to the catalogues of publishers and the files of technical periodicals.

(*a*) "Kidder's Pocket Book," 1916, pp. 1629–1637, **"Waterproofing for Foundations."**

(*b*) "The Building Estimators' Reference Book," 1917, F. R. Walker, **"Caissons, Concrete Foundations, Water- and Damp-proofing"** pp. 123–308.

(*c*) "Building Construction and Superintendence," Frank E. Kidder, Part I, **Masons Work.**

(*d*) "American **Civil Engineers' Pocket Book**," M. Merriman.

(*e*) **"Prevention of Dampness in Buildings,"** A. W. Keim.

(*f*) **"Modern Methods of Waterproofing,"** Myron H. Lewis.

(*g*) **"Waterproofing of Engineering Structures,"** W. H. Finley, *Journal of the Association of Engineering Societies*, 1912, p. 545.

(*h*) See *Journal of Society of Constructors of Federal Buildings* (1A2d) for:

1. **"Waterproofing,"** Thomas Appleton, May, 1915.
2. **"Waterproofing,"** A. Grothwell, February, 1917.
3. **"Hydrated Lime** in connection with **Cement Mortars** and the Improvement Thereof," N. L. Whitcraft, March, 1916.

(*j*) For other references to the use of **Hydrated Lime** see **"Structural Service Book,"** Vol. I, 1917, under 2B4 to 2B10, in addition to which the subject will be treated under Serial No. 2 next month.

(*k*) "Some Practical and Technical **Tests on Water-proofing Materials,"** Joseph Rosenzweig, *The Municipal Engineers' Journal*, November and December, 1917.

Waterproof Concrete. 1F3

(*a*) At the International Engineering Conference in San Francisco, Calif., 1915, a paper entitled **"Waterproof Concrete,"** by Richard L. Humphrey, Philadelphia, Pa., was presented. Same contains a complete **bibliography on waterproofing and concreting**, the references mentioned below from (*b*) to (*o*) being selected therefrom as of especial interest to building constructors.

(*b*) The U. S. Bureau of Standards (1A5g3) has issued Technologic Paper No. 3: "Tests of the **Absorptive and Permeable Properties** of Portland **Cement Mortars and Concretes**, Together with Tests of Damp-proofing and Water-proofing Compounds and Materials," R. J. Wig and P. H. Bates. 1912. 127 pp.; illus. 20 cents.

(*c*) The U. S. Department of Agriculture (1A3d). Bulletin No. 230, 1915: **"Oil-Mixed Portland Cement Concrete,"** Logan Waller Page.

(*d*) See U. S. Reclamation Record, Vol. VI, No. 4, 1915, for **"Waterproofing Concrete Surfaces,"** J. L. Lytel.

(*e*) See in A.S.T.M. publications, among others, the following:

1. "Permeability **Tests of Concrete** with the Addition of **Hydrated Lime,"** Sanford E. Thompson, Vol. VIII, p. 500, 1908.
2. "The Effect of **Sodium Silicate** Mixed with or Applied to **Concrete,"** Albert Moyer, Vol. X, p. 351, 1910.
3. Reports of Committee D-8 on **"Waterproofing,"**
4. **"Coal-Tar and Asphalt** Products **for Waterproofing,"** Samuel T. Wagner, Vol. XIII, p. 955, 1913.

(*f*) See the **"Proceedings"** of the **American Society of Civil Engineers** (1A2a1); 24 references given in 1F3a.

(*g*) See **"Proceedings"** of the National Association of Cement Users and of its successor, the **American Concrete Institute** (Serial No. 2); 14 references given in 1F3a.

(*h*) American Railway Engineering Association Manual (1A2c3), Reports of Committee on Masonry: **"Waterproofing of Masonry."**

(*j*) American Railway Bridge and Building Association, Vol. XVIII, p. 46, 1908: "Report of Committee on **Waterproofing of Concrete-covered Steel Floors** of Bridges."

(*k*) Dartmouth College (1A1a13), Bulletin Thayer School of Civil Engineering, 1902: "The **Permeability of Concrete** under High Water Pressure," J. B. McIntire and A. L. Pure.

(*l*) The Iowa State College Engineering Experiment Station has issued:

1. "Experiments on **Impermeability and Waterproofing of Cement Blocks**, Etc.," B. R. Smith and H. L. Christian, F. E. Cave and G. H. Mack, and W. A. Burton, Vol. IV, Bulletin No. 3, 1908.
2. "Experiments on **Permeability and Waterproofing Concrete**, Etc.," R. R. Strothers and Platt Wilson, O. L. Huffman and E. S. Fowler, Royce Heath, and others. Vol. IV, Bulletin No. 4, 1909.

(*m*) University of Illinois (1A1a15), The Technography, No. 23, 1908, 1909: "Making Concrete Waterproof **Tests of Alum and Soap Waterproofing** under the Direction of Ira O. Baker," B. L. Bowling and C. G. Derrick.

(*n*) Ohio State University (1A1a34), 1901, 1903, "Tests to Determine **Causes and Remedies** for the **Permeability of Cement Mortar.**"

(*o*) University of Wisconsin (1A1a51), Vol. VI, Bulletin No. 1, 1909: "Tests on the **Permeability of Concrete,"** F. M. McCullough.

(*p*) See the following publications of the Portland Cement Association (Serial No. 2), available Dec. 5, 1917; mailed without charge upon request:

No. 29. Concrete **Swimming- and Wading-Pools.**
No. 30. Concrete **Linings for Irrigation Canals.**
No. 44. Concrete **Tile for Land Drainage.**
No. 48. Concrete **Ships.**
No. 49. Why not More **Concrete Tanks?**
No. 133. Concrete **Septic Tanks.**
No. 141. **Concrete Foundations.**

(*q*) See, also, **"Integral Waterproofing,"** by Mr. Horn, *Journal, Society of Constructors of Federal Buildings*, February, 1917.

Integral Waterproofing Compounds. 1F4

A committee composed of representatives from Government offices, engineering societies, and the various industries, including all known manufacturers of **waterproofing compounds** has coöperated with the U. S. Bureau of Standards in planning a series of **field experiments** on concrete tanks, both with and without waterproofing compounds. A questionnaire was submitted by the Bureau to architects, contractors, and engineers, to gather information on the present usage of these materials. Data concerning the progress of this investigation is expected to be included in the 1917 Report, Bureau of Standards.

Concrete in Sea Water. 1F5

(*a*) For "Investigation of **Concrete Structures in Sea-Water**" see Bulletin No. 27, "Public Works of the Navy" (Structural Service Book, Vol. I, under 8A1). This 24-page **report** on the condition of concrete structures in sea water at the navy yards, Boston and Puget Sound, by the Bureau of Standards, is profusely illustrated and contains plans, sections, diagrams, tables, and other data.

(*b*) For **"Durability of Concrete in Sea Water"** see 11 pages of **bibliographies and abstracts** of published papers (not complete) printed in the January, 1917, Bulletin of the Navy above referred to.

Concerning Bituminous and Other Materials. 1F6

See some of the references under 1F2 and see, also, **"Heat Transmission, Insulation, Coverings"** in Structural Service Book, Vol. I, which contains many publications of interest.

(*a*) **"The Asphalt Industry"** (from an interview with James L. Rake), "Proceedings," Engineers' Club of Philadelphia, January, 1917. Illus.

(*b*) **"Asphalts:** Their Sources and Utilization," T. Hugh Boorman. Contains addenda treating on general waterproof construction.

(*c*) **"Effects of Exposure on Tar Products,"** C. S. Reeve and B. A. Anderton, *Journal*, Franklin Institute, October. Illus.

(*d*) See *Journal of the Society of Constructors of Federal Buildings*, issue of February, 1917, **"Technical Paints,"** a paper by A. H. Rhett.

(*e*) See, **"The Waterproofing of Fabrics,"** S. Mierzinski.
(*f*) See, also, **"Asphalt,"** by Clifford Richardson.
(*g*) The Building Data League has issued (for members):
1. Standard Specification for **Damp-proofing Exterior Walls above Grade** (Topic No. 395–1).
2. Findings on Registered Product, being **Damp-proofing for Masonry Walls, Interior Surfaces** (Topic No. 391–1).

Structural Iron and Steel. . . .

From the earliest history of the industry the producers have, closely following first the leading members of the older engineering societies abroad and then of those in this country, coöperated in developing the production of iron and steel to the present state. In addition to the governmental and other agencies already mentioned, the following organizations in this country are among those specifically concerned with development on the structural side. Others concerned with the manufacture and use of iron and steel in the form of the various metallic products entering into the equipment of buildings will be referred to in subsequent issues.

The U. S. Bureau of Mines will be referred to in Serial No. 2.

American Institute of Mining Engineers. 1G1

Secretary: Bradley Stoughton, 29 West 39th Street, New York City.

Publications:

(*a*) **Transactions,** three volumes annually constitute an important record of research and practice in mining and metallurgy.
(*b*) **Monthly Bulletin** contains professional papers, reports of proceedings, a forum for discussion and other matters of interest.
(*c*) **Papers and discussions** printed in the Bulletins are also published as individual pamphlets.
(*d*) **Year Book** containing a list of members and committees.

Members receive (*a*) and (*b*) free; to non-members the prices are (*a*) each volume, paper, $5, in half morocco $6; (*b*) $12 per annum.

The Institute was organized in 1871. It aims to promote the economic production of the useful minerals and metals, and the welfare of those employed in these industries.

Technical committees are actively at work for the advancement and welfare of the profession and to promote discussion and stimulate the preparation of technical papers.

American Iron and Steel Institute. 1G2

Secretary: James T. McCleary, 61 Broadway, New York City.

Publications. Among these are:

(*a*) **Monthly Bulletin,** largely devoted to sociological subjects (housing, sanitation and recreation facilities for employees included).
(*b*) **Yearbook,** verbatim proceedings of the general meetings.
(*c*) **Annual Statistical Report.**
(*d*) Special **statistical bulletins,** published from time to time during the year as advance copy from the annual statistical report.
(*e*) Iron and Steel Works **Directory** of the U. S. and Canada, published every few years, latest issue being 1916.

The Institute collects and publishes the statistics of production of all iron and steel in the U. S. and Canada, except the work of fabricators, and is a clearing-house for the iron and steel industry in these countries in connection with activities which promote health and safety in mine and mill.

American Foundrymen's Association, Inc. 1G3

Secretary: A. O. Backert, 12th and Chestnut Streets, Cleveland, Ohio.

Publications:

(*a*) **Transactions,** a bound volume containing the papers, addresses and discussions at the annual meeting.
(*b*) **Pamphlets** on papers and addresses at the annual convention.
(*c*) **Yearbook** containing the names of members and the by-laws.

Above are free to members, but may be purchased by others at (*a*) $5 each, (*b*) $5 annually, (*c*) $1.50 a copy.

The Association was founded in 1896, and incorporated in 1916. Its object is to promote knowledge in the production of castings, and its work is concerned chiefly with gray and malleable iron and steel foundry practice and does not take into consideration non-ferrous metals.

The Association of American Steel Manufacturers. 1G4

Secretary: Frank A. Robbins, Jr., Care of Bethlehem Steel Co., Steelton, Pa.

No publications; for Standard Specifications, see 1G7*j*.

Was formed about 1895 to **standardize the practices** of the **steel trade** and its **specifications.** Many of the specifications of this Association have later been adopted in whole or in part by other associations and societies, and in many cases this Association has gladly relinquished its claims to the original specifications when good use has been made of its pioneer work.

(*h*) See **"Smoke and Water Damage,"** F. E. Roberts, N.F.P.A. *Quarterly,* Vol. 7, No. 4 (4D1*l*).
(*j*) See **"Watertight Floors of Mill Construction,"** Inspection Dept. Asso. Factory Mutual F. I. Co.'s (Serial No. 3), February, 1915.
(*k*) See **"Waterproofing of Floors,"** pp. 126, 128, 129, "Building Code Recommended by the N.B F.U.," 1915 (Serial No. 3).

. . . . . 1G

National Erectors' Association. 1G5

Secretary and *Treasurer:* C. E. Cheney, 286 Fifth Avenue, New York.

Issues **booklet** containing list of members, which comprises many of the largest firms and individuals concerned with the erection of structural steel, and setting forth the purposes which appear to relate primarily to the policy of the "open shop."

Information Obtainable. 1G6

(*a*) It lies outside our province to attempt to give in any instance a complete bibliography; especially is this so where such **voluminous literature exists** as in the case of structural design and practice. We have, however, through the courtesy of R. B. Woodworth, Sales Statistician of the Carnegie Steel Co., been furnished with a very comprehensive selected list of publications, periodicals, and articles covering:

Metallurgy of Steel, Technical, Popular—**Materials of Construction—Mechanics of Materials—Structural Mechanics—Design of Structures,** General, Special—**Detailing of Steel Structures—Reference Books and Standards** in Design of Steel Structures—**Mill and Shop Testing** of Steel Work—**Preservation of Iron and Steel—Cast Iron and Castings.**

A copy of this list will be furnished upon request to the Journal.

(*b*) The **Handbooks** and others in the following list will be found to constitute an excellent **workable reference set** with respect to nearly all phases of these subjects:
(*c*) Kidder-Nolan **"Architects' and Builders' Pocket Book,"** 1916.
(*d*) **"Civil Engineers' Pocket Book,"** J. C. Trautwine.
(*e*) **"The American Civil Engineers' Pocket Book,"** M. Merriman.
(*f*) **"Civil Engineers' Pocket Book,"** Albert I. Frye.
(*g*) **"Structural Engineers' Handbook,"** Milo S. Ketchum.
(*h*) **"Structural Designers' Handbook,"** Wm. Fry Scott.
(*j*) **"Properties of Steel Sections,"** John C. Sample.
(*k*) **"Curves for Calculating Beams, Channels and Reactions,"** S. Diamant.
(*l*) **"Tables of Stresses in Roof Trusses,"** H. C. Hearne.
(*m*) **"Catalogue of Bethlehem Structural Shapes,"** Bethlehem Steel Company, 1911.
(*n*) "Handbook Containing **General Information** for the Use of **Engineers, Architects and Builders,** "Lackawanna Steel Company, 1915.
(*o*) "Handbook of **Information Relating to Structural Steel,"** Cambria Steel Company, 1916.
(*p*) **"Pocket Companion,"** Carnegie Steel Company, 1916.
(*q*) **"Manual,"** Jones & Laughlin Steel Company, 1916.

Much of **related interest** would be found in:

(*r*) Mechanical Engineers' Pocket Book, Wm. Kent, 1916.
(*s*) Mechanical Engineers' Handbook, Lionel S. Marks, 1916.
(*t*) Fire Prevention and Fire Protection, J. K. Freitag, 1912.
(*u*) Fire-proofing of Steel Buildings, J. K. Freitag, 1909.

Also in many of the handbooks and other reference books on **Estimating, Cost Data,** etc., previously mentioned in this Serial Number.

(*v*) The **University of Illinois Engineering Experiment Station** has issued, among others, the following **Bulletins** which may be obtained as mentioned in the **Structural Service Book,** Vol. I, under 3C2.
1. No. 35: A Study of **Base and Bearing Plates** for **Columns** and **Beams,** N. Clifford Ricker, 1909. 20 cents.
2. No. 80: **Wind Stresses** in the **Steel Frames** of **Office Buildings,** W. M. Wilson and G. A. Maney, 1915.
3. No. 86: The **Strength** of I **Beams** and **Girders,** H. F. Moore and W. M. Wilson. 1916.

(*w*) **"Wind Bracing in Steel Skeleton Construction,"** W. M. Wilson, "Handbook for Architects and Builders," Illinois Society of Architects, Vol. XX, 1917. Four pages of text and tables.
(*x*) Concerning the use of **cast-iron cores** in concrete columns. Richard E. Schmidt of the Illinois Chapter Subcommittee on Materials brought this matter to the attention of Chairman Nolan and sent him a copy of **"Engineering and Contracting"** for Feb. 28, 1917.

This contained an interesting account of tests conducted at the Pittsburgh laboratory of the U. S. Bureau of Standards,

undertaken at the instance of L. J. Mensch, M. Am. Soc. C. E. and General Contractor, who had the test columns made. This article is illustrated and contains detailed drawings and tables, as does also a more extensive paper entitled **"Tests of Concrete Columns with Cast-Iron Core"** by L. J. Mensch, published in "Proceedings" of the A.I.A., Vol. XIII, 1917.

(*y*) See **"Cast-Iron Columns, Bases and Lintels"** in the "Building Code" of the N.B.F.U. for 1915.

(*z*) **"Non-Technical Chats** on **Iron** and **Steel,"** LaVerne W. Spring. Fully illustrated.

Progress Toward Standardization. 1G7

(*a*) An important investigation, in progress for a number of years and of value to the engineering and architectural professions, consists of two **series of column tests** which the U. S. Bureau of Standards is making in coöperation with the steel column committees of the American Society of Civil Engineers and of the American Railway Engineering Association.

(*b*) Brief details of the above tests and a progress report on other **tests being conducted** in coöperation between the Bureau and the Underwriters' Laboratories and Associated Factory Mutuals Laboratories, with reference to **columns and beams under fire** tests with different protectional coverings, will be found in the **Structural Service Book**, Vol. I, 1917, under 1F7 and 3E3, and the latter will again be reported upon in a later Serial Number by the Institute's Committee Relating to the Work of the Underwriters' Laboratories.

(*c*) **"Fabrication of Steel Structures."** No standards have been officially adopted, but the following have been in use by educational institutions and in general practice:

1. **"Specifications for Steel Structures, Design, Details of Construction and Workmanship,"** adopted 1912, American Bridge Company. Printed in Carnegie "Pocket Companion," 1916, pp. 154–161. Also in Standard Specifications, distributed by Carnegie Steel Company.
2. **"Standard Specifications for Fabricated Steel Building Construction,"** adopted, 1915, Jones & Laughlin "Manual," 1916, pp. 370–377. Jones & Laughlin Steel Company.
3. As these **two specifications exist** and appear to have no irreconcilable variations, and because **no general or basic specifications** are extant for the **erection, painting and inspection** of steel structures, the Editor has received during the past year a number of letters and suggestions which have led him to address himself to the following undertaking:

   He has written the American Bridge Company and the Jones & Laughlin Steel Company, suggesting that they coöperate in amalgamating these specifications through appropriate technical committees and bodies of architects and engineers into **one** standard **Specification for Fabrication.** He has written to the National Erectors' Association, suggesting that it enlarge the scope of its activities mentioned under 1G5 and undertake, through similar concerted action, to evolve a **general specification for erection, painting and inspection.** The outcome will be awaited with interest, and the Structural Service Department, with those who have also made these suggestions, will assuredly coöperate in every way possible in bringing about these desirable results.

(*d*) The American Foundrymen's Association Inc. (1G3) cooperated with Committee A-3 of the A.S.T.M. in the preparation of standard **specifications for Cast-Iron** (1G8*d*).

(*e*) See the Proceedings of the A.S.T.M. for these and all other standards on iron and steel referred to below.

(*f*) See, also, **"Instructions for the Mill Inspection of Structural Steel,"** in Manual of the American Railway Engineering Association (1A2*c*3).

(*g*) See, also, the Section **"Steel Construction"** in "Building Code Recommended by the National Board of Fire Underwriters," Serial No. 3, Structural Service Book, Vol. I.

(*h*) **Practice:** The Association of American Steel Manufacturers recommends that certain **sections** of **angles, channels, and I-beams** be considered as **standard** for general building construction and other work. These angles are usually indicated in the steel companies' handbooks by a different-faced type; the use of same, whenever possible, instead of **avoidable variations,** will tend toward **economy** in construction through lessening costs of rolling and carrying in stock sizes infrequently called for.

(*j*) In addition to the **"standard specifications"** for various other forms of manufactured steel, promulgated by The Association of American Steel Manufacturers, the **"Manufacturers' Standard Specifications for Structural Steel for Buildings"** have for many years been referred to by architects and engineers to secure uniformity in estimating conditions and practice. While these are still often referred to, as they differ but slightly from the later standards of the A.S.T.M., it is noted that the **handbooks** of steel companies print the latter specifications rather than the former, and, for the sake of uniformity, it is suggested that architects and other constructors observe the **recommendations** contained in the statement by Prof. Thomas Nolan concerning the A.S.T.M. standard below.

(*k*) See Index to "Lefax Data Sheets," classification (1) Civil, and (2) Mechanical, for topics of interest.

Iron and Steel Standards Adopted. 1G8

(*a*) **Standard Specifications for Structural Steel for Buildings, A.S.T.M. Serial designation A9–16.**

A brief statement concerning the development of these Standard Specifications was made by the writer in the January, 1917, issue of the Structural Service Department and appears in the Structural Service Book, Vol. I, under 1F6.

The status of this Standard remains as before, Committee A–1 on Steel of the A. S. T. M. having no changes to recommend.

Attention is again especially called to the fact that **these Specifications are the standards** that should be generally followed throughout the United States, and that the members of the Institute, and all others interested in promoting the very best usages in the materials and methods of construction, should **urge their universal adoption.**—THOMAS NOLAN, *Chairman*, A.I.A. Committee on Materials and Methods.

(*b*) NOTE.—These standards will be found printed and illustrated in the book of A.S.T.M. Standards, 1916; also separately; also printed and illustrated, together with bridge and other standard specifications, in Carnegie "Pocket Companion," 1916, pp. 10–15; also in Jones & Laughlin "Manual," 1916, pp. 342–347; also in "Standard Specifications," distributed by Carnegie Steel Company.

(*c*) **Paragraph of Application.** Without opportunity for action by Institute Committees coöperating with this Department, but after conference with interested members, the Editor offers the following for possible incorporation in specifications to secure the result desired:

All Structural Steel shall comply with the requirements of Standard Specifications for Structural Steel for Buildings of the American Society for Testing Materials, serial designation A 9–16, together with all subsequent official revisions thereof. Structural Steel shall be inspected by Inspecting Engineers of the Architect's selection, the bill for whose services shall, upon approval of the Architect, be paid by the Contractor. The Contractor in his estimate shall allow for and include the sum of————per ton to cover cost of mill, shop, and field inspection of all structural steel.

(*d*) Of further interest in connection with "Structural Iron and Steel" are the following Standards adopted by the A.S.T.M.:

1. Standard Specifications for Structural Steel for Bridges (Serial designation A 7–16).
2. Standard Specifications for Billet-Steel Concrete Reinforcement Bars (Serial designation A 15–14).
3. Standard Specifications for Rail-Steel Concrete Reinforcement Bars (Serial designation A 16–14).
4. Standard Specifications for Steel Castings (Serial designation A 27–16).
5. Standard Tests for Magnetic Properties of Iron and Steel (Serial designation A 34–14).
6. Standard Specifications for Refined Wrought-Iron Bars (Serial designation A 41–13).
7. Standard Specifications for Wrought-Iron Plates (Serial designation A 42–13).
8. Standard Specifications for Iron and Steel Chain (Serial designation A 56–15).
9. Standard Specifications for Malleable Iron Castings (Serial designation A 47–15).
10. Standard Specifications for Gray-Iron Castings (Serial designation A 48–05).

(*e*) The **U. S. Navy Department** issues specifications as mentioned in the Structural Service Book, Vol. I, 1917 (3A1*a*), among them being:

1. **"Foundry Pig Iron,"** Serial designation 46–11–C.
2. **"Iron Castings"** Serial designation 49–12–a.
3. **"Wrought Iron** for the Manufacture of **Chain** and for **Miscellaneous Purposes."**

(*f*) In the **"Handbook for Architects and Builders"** of the **Illinois Society of Architects,** Vol. XX, 1917, is printed **"Standard Specifications for Structural Steel,"** but there is no note indicating from what source these are derived.

The same applies to **"Standard Specifications for Billet-Steel Concrete Reinforcement Bars,"** printed in the above.

Preservation of Iron and Steel. 1G9

(*a*) This subject was first touched upon in the Structural Service Department for January, 1917, and was again gone into in later Serial numbers in connection with various products and processes. This year it is the intention to treat these subjects collectively in a later issue, and the reader is therefore referred to the **Structural Service Book, Vol. I,** where under 1F8 and in the General Index will be found all references made to corrosion and to protective coatings.

"Signs of Change"

A DEPARTMENT DEVOTED TO ECONOMIC ASPECTS OF THE BUILDING INDUSTRY

SULLIVAN W. JONES, *Associate Editor*

Foreword

THE world's attitude toward business, and, consequently, business methods, is undergoing fundamental changes. These changes, which already have become apparent, are scattered articulations of the struggle to better conditions—economic, social and moral. The tide of reform is rising irresistibly throughout the world.

The war's demand for intensified effort and maximum efficiency in the production and distribution of the world's goods has thrust forward a collection of conditions and problems which must otherwise have developed gradually as the inevitable result of the past. The light of understanding has thus suddenly been turned in the direction in which this tide of reform is moving. The movement must be directed with intelligence and vision, and the time has come to adopt a constructive habit of mind, which is described by H. G. Wells as leading us to think "constantly and by preference of things to come, and of present things mainly in relation to the results that must arise from them."

In this new department, the purpose is to focus attention on those current events in the building industry which are indications of change; and to point out, when possible, their relation to the unmistakable tendency toward collective action and coöperative effort.

The National Conference on the Quantity System

The American Institute of Architects issued last August an invitation to six professional societies, four contractors' associations, and nine trade organizations, whose members were engaged in either professional or contractual capacities in the building industry, to appoint representatives to confer with the Institute's representative on the Quantity System, or some other measure for improving conditions surrounding competitive bidding for construction contracts.

The Conference was called for October 15, 1917, at the Octagon, Washington, D. C., and was attended by representatives from the Society of Constructors of Federal Buildings, the American Society of Civil Engineers, the Bureau of Yards and Docks, the Supervising Architect's office, the Government Contractors' Association, the National Association of Marble Dealers, the International Association of Cut Stone Contractors, the National Association of Sheet Metal Contractors, the Automatic Sprinkler Association, the Quantity Survey Company, and the American Institute of Architects. The other societies and associations had, with but three exceptions, two of these being architectural societies, appointed representatives, who, however, were unable to be present.

The meeting was called to order by the representative of the Institute, Sullivan W. Jones, who reviewed the prevailing unhealthy conditions in the building industry as reflected particularly in the steady downward tendency of standards of construction, the increasing difficulty of securing full value in return for money invested in buildings, and the gradual, but none the less evident, undermining of the moral stamina of the contracting fraternity. The belief was expressed that these conditions were rooted in uncertainty regarding the exact contract obligations to be undertaken, or, in other words, the absence of clearly definite quantities of work and materials to be delivered and upon which competitive tenders were asked. In this connection mention was also made of the economic waste involved in competitive bidding as generally conducted, due to the multiplication of the cost of estimating by the number of bidders invited.

The Institute held a view, Mr. Jones declared, that these matters were of vital interest, not alone to architects, but also to everyone who was dependent, either wholly or in part, upon the building industry for a livelihood; and if that was so, that the problem was one calling for coöperative action. It was to bring about such coöperative action that the Institute had proposed the Conference. Mr. Jones gave a brief historical sketch of the movement in the United States for the adoption of the Quantity System, explaining that the Institute had become interested in it because of the belief that this System held greater promise of relief than any of the other corrective measures that had been advocated.

Upon the close of the discussion, the following resolution was unanimously adopted:

"*Resolved*, First, that it is the sense of this meeting that a permanent organization should be formed for the promotion and adoption of the Quantity System of estimating; and that the organization should also take under consideration all other questions of procedure in the award of contracts.

"Second, that the Chairman appoint a Committee to prepare a draft on a proposed Quantity System to be presented to a second Conference to be held at the call of the Chair, and that all professional societies and contractors' associations interested in the building industry be invited to appoint delegates to attend the second Conference."

The Chairman has appointed the following as members of the Committee provided for in the above resolution: Henry H. Quimby, representing the American Society of Civil Engineers; Fred G. Webber, representing the National Association of Builders' Exchanges; F. W. Ginder, representing the Supervising Architect's office; Wm. Graves Smith, representing the Quantity Survey Company. The Chairman will sit with the Committee *ex officio*.

General Index to Structural Service Department

Classified Index to Industrial Section

(References in classified index refer to the serial numbers published in 1917.)

	Page
Acoustics. 12K	
Johns-Manville, H. W., Co.	xxix
Asbestos Products. 4D	
Johns-Manville, H. W., Co.	xxix
Automatic Sprinklers. 4A3 and 4F	
Bells, Electric. 6G	
Billiard Tables. 5L	
Boilers (Copper). 9F	
Boilers, Heating. Serial No. 10C	
Blowers, Heating and Ventilating. 10E	
David Lupton's Sons Co.	xxi
Bowling Alleys. 5L	
Brick. Serial No. 3D	
Hydraulic Press Brick Co.	xv
Blue Prints. (Serial No. later)	
New York Blue Print Paper Co.	xxviii
Bronze (Architectural). 11B12	
Bulkheads. 5F	
Cement and Concrete. 1E and 11C1	
Atlas Portland Cement Co.	xi
Atlas White Cement	xiii
Charts, Standard Electrical. 6E4	
Chimneys. 10H	
Chutes (Laundry). Serial Nos. 9H1 and 11B9	
Pfaudler Co., The	xxiv
Chutes (Mail). Serial No. 11B8	
Cutler Mail Chute Co.	xxxiii
Concrete Fills, and Various Top Coats. 1E10	
Conduits. 6E1	
National Metal Molding Co	xx
Composition Floors. 1E9	
American Materials Co.	xxvii
Contracts (Standard).	
For Dealers in, see	xxxix
Corrosion and Treatment of Metals. 11B2	
Domes. 3D	
Doors (Metal). Serial Nos. 4C and 11B7	
Merchant & Evans Co.	xxviii
Dumbwaiters. 6F	
Sedgwick Machine Works	xx
Electricity. Serial No. 6	
Electrical Fittings and Supplies. 6F and 6G	
National Metal Molding Co.	xx
Electrolysis. 6N	
Elevators (Electric). 6F	
Otis Elevator Co.	v
Elevators (Hand). Serial No. 6F	
Sedgwick Machine Works	xx
Elevator Signals. 6G	
Engineering Service. 1E5	
Corrugated Bar Co.	xii
Exits, Stairways, and Fire Escapes. 4E	
Fans, Heating and Ventilating. 10E	
David Lupton's Sons Co.	xxi
Filters. 9E	
Loomis-Manning Filter Distributing Co.	xxv
Financial. (Serial No. later)	
Fireplaces. 10H	
Fire Escapes. 11B14	
Fire Prevention and Protection. Serial Nos. 3 and 4	
Fittings: Gas 7E, *Steam* 10J, *Water* 9H	
Crane Co.	xvi
Floor Systems. 11D3	
Floor Treatment. 11D4	
Flooring (Composition). 1E9	
American Materials Co.	xxvii
Floors (Wood). 5J	
Flooring Underfills. 1E9	
Floor Hardener. 1E10	
Sonneborn, L., Sons, Inc.	3d Cover
Flues. 10H.	
Foundational Requirements, Concrete Piling, Steel Piling. 1C	
Furring. 11D3	
Gas. Serial No. 7	
Gas Appliances. 7H	
Humphrey Co.	xxiii
Glass (Stained). Serial No. 12F2	
Heinigke & Smith	xxv
Granite. 2E1	
Greenhouses. Serial No. 12F5	
Lord & Burnham Co.	xxii
Glass (Wire). Serial Nos. 3, 4, and 12	
Mississippi Wire Glass Co.	xxiv
Gypsum. Serial Nos. 3, 4, and 11C1	
Hardware. 11B11	
Vonnegut Hardware Co.	iv
Heating. Serial No. 9	
Hoists, Electric. 6F	
Hollow Tile. Serial Nos. 3 and 4	
Insulations. 10N	
Johns-Manville, H. W., Co.	xxix
Insurance, Fire. 4H	
Interior Finish (Wood). 5H	
Sisman Co., Andrew G.	xxvii
Laboratories (Testing and Research). 1B	
Lamps, Electric. 6H	
Lath (Metal). Serial Nos. 3, 4, and 11D6	
Associated Metal Lath Manufacturers	xiv
Northwestern Expanded Metal Co.	xiii
Lath (Wood). 5K	
Bishopric Manufacturing Co.	iii
Laundry Chutes. Serial No. 9H1	
Pfaudler Co., The	xxiv
Lighting, Electric. 6H and 11B13	
Lighting, Gas. 7M and 11B13	
Lightning Protection. 4G	
Limestone. 2G1	
Indiana Limestone Quarrymen's Association	xxxiv
Lime and Hydrated Lime. 2B and 11C1	
Lumber. Serial No. 5 (Includes references to lumber for all purposes; also to branding, grading, preservation and construction).	
White Pine Bureau	vi
Mail Chutes. 11B8	
Cutler Mail Chute Co.	xxxiii
Magnesia Covering. 4K and 10N	
Marble. 2F1	
Metal Lath. Serial Nos. 3 and 4	
Associated Metal Lath Manufacturers	xiv
Northwestern Expanded Metal Co.	xiii
Metal Products (Fire Prevention and Protection). Serial Nos. 3, 4, and 11	
Associated Metal Lath Manufacturers	xiv
Monuments and Mausoleums. 2E1	
Mortar Colors. Serial No. 11	
Ornamental Iron. 11B12 and 11D7	
Paints (Steel and Iron Preservative). 1F8	
Toch Brothers	xviii
Paints, Varnish and Enamel. Serial No. 12E	
Matheson Lead Co.	xviii
Murphy Varnish Co.	xvii
Paints (Waterproofing). 1D	
Toch Brothers	xviii
Partitions (Fireproof). Serial Nos. 4C and 11D3	
Partitions (Folding). Serial No. 4C	

Page

Piles (Concrete). 1C
Piles (Wood). 5F
Pipe (Cast Iron). 9L and 11B6
Cast Iron Soil Pipe Makers' Association . . . . xxx–xxxi
Pipes (Wrought Iron). Serial Nos. 9J, 10J and, 11B6
Plastering. 11D5 and 11D6
Associated Metal Lath Manufacturers xiv
Plastic Products. 11C
Plumbing Equipment. Serial No. 9H
Crane Co. xvi
Johns-Manville, H. W., Co. xxix
Trenton Potteries Co., The xiv
Preservation of Iron and Steel. 1F8 and 11B3
Toch Brothers xviii
Quantity Survey. (Serial No. later)
Quantity Survey Co. . . . . 4th Cover
Radiators (Gas). 7H–7J
Radiators (Steam). Serial No. 10K
Registers, Hot and Cold Air. 10K
Roofing. Serial Nos. 4, 5, and 11D2
American Sheet & Tin Plate Co. xxviii
Barrett Mfg. Co. vii
Johns-Manville, H. W., Co. xxix
Taylor, N. & G., Co. xxv
Merchant & Evans Co. xxviii
Safety to Life. Slipping Hazards. 4E and 11B14
American Abrasive Metals Co. . . . . 2d Cover
Vonnegut Hardware Co. iv
Sandstone. 2H1
Sash Pulleys. 5G4 and 11
Sash (Steel). Serial No. 11D2
Lupton's Sons, David, Co. xxi
Scuppers, Inserts and Devices. 4C4
Sheet Metal Cornices, Skylights, Ventilators. 11D2
Lupton's Sons, David, Co. xxi
Shingles (Stained). 5K
Shingles (Wood). 5K
Signal Systems, Electric. 6G
Skylights. 11D2
Slate. 2K1
Stains, Shingle. Serial No. 12E
Cabot, Samuel, Inc. xxv

Page

Stair Treads. 4E and 11B14
American Abrasive Metals Co. . . . . 2d Cover
Stone in General. 2J and 11C3
Indiana Limestone Quarrymen's Association xxxiv
Stone Masonry, Broken Stone, Sand, and Gravel. 2C
Structural Steel and Iron. 1F
Stucco. 11D5
Atlas White Cement xiii
American Materials Co. xxvii
Stucco Board. 11D6
Bishopric Manufacturing Co, The iii
Symbols, Standard Electrical. 6E4
Tanks and Reservoirs. 4D5
Telephone Systems. 6G
Terra Cotta. 3D
Northwestern Terra Cotta Co. xix
Terazzo Floors. 2F4
Tile. Serial Nos. 9J and 11C4
Associated Tile Manufacturers, The xxvi
Treatment of Concrete Floors and Surfaces. 1E11 and 4D
Sonneborn, L., Sons, Inc. . . . . 3d Cover
Toch Brothers xviii
U. S. Geological Survey. 2A1
U. S. Navy Department. Serial No. 3A1
Vacuum Cleaners, Electric. 6K
Varnish. Serial No. 12E
Murphy Varnish Co. xvii
Veneering. 5H
Ventilation. 10E and 10G
David Lupton's Sons Co. xxi
Water-Heaters (Gas). 7K
Humphrey Co. xxiii
Waterproofing and Dampproofing. 1D and 11C2
Sonneborn, L., Sons, Inc. . . . . 3d Cover
Toch Brothers xviii
Whitewash. 2B9
Windows (Metal). 4C and 11B7
Lupton's Sons, David, Co. xxi
Wood. Serial No. 5 (See also Lumber)
Sisman Co., Andrew G. xxvii
White Pine Bureau vi
Wood Finishing. 5H
Murphy Varnish Co. xvi

Industrial Section Index

Page

American Abrasive Metals Co. . . . . 3d Cover
American Materials Co. xxvii
American Sheet & Tin Plate Co. xxviii
Associated Metal Lath Manufacturers xiv
Associated Tile Manufacturers, The xxvi
Atlas Portland Cement Co. xi
Atlas White Cement xiii
Barrett Manufacturing Co. vii
Beaux-Arts Architects, Society of xxv
Bishopric Manufacturing Co. iii
Cabot, Samuel, Inc. xxv
Cast Iron Soil Pipe Makers' Association xxxi
Corrugated Bar Co. xii
Crane Co. xvi
Cutler Mail Chute Co. xxxiii
Heinigke & Smith xxv
Humphrey Co. xxiii
Hydraulic Press Brick Co. xv
Indiana Limestone Quarrymen's Association xxxiv
Johns-Manville, H. W., Co. xxix
Loomis-Manning Filter Distributing Co. xxv

Page

Lord & Burnham Co. xxii
Lupton's Sons, David, Co. xxi
Matheson Lead Co. xviii
Merchant & Evans Co. xxviii
Mississippi Wire Glass Co. xxiv
Murphy Varnish Co. xvii
National Metal Molding Co. xx
New York Blue Print Paper Co. xxviii
Northwestern Expanded Metal Co. xiii
Northwestern Terra Cotta Co. xix
Otis Elevator Co. v
Pfaudler Company xxiv
Quantity Survey Co. . . . . 4th cover
Sedgwick Machine Works xx
Sisman Co., Andrew G. xxvii
Sonneborn, L., Sons, Co. . . . . 3d Cover
Standard Documents xxvii
Taylor, N. & G., Co. xxv
Toch Brothers xviii
Trenton Potteries Co., The xiv
Vonnegut Hardware Co. iv
White Pine Bureau vi